XR-C8200

SERVICE MANUAL

US Model

For RM-X2S (Remote Commander), please refer to RM-X2S/X3S Service Manual (9-960-039-□□) previously issued.

Dolby noise reduction manufactured under license form Dolby Laboratories Licensing Corporation.
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Model Name Using Similar Mechanism	NEW
Tape Transport Mechanism Type	MG-25D-136

SPECIFICATIONS

AUDIO POWER SPECIFICATIONS

POWER OUTPUT AND TOTAL HARMONIC DISTORTION
17 watts per channel minimum continuous average power into 4 ohms, 4 channels driven from 20 Hz to 20 kHz with no more than 1 % total harmonic distortion.

Other specifications

Cassette player section

Tape track	4-track 2-channel stereo
Wow and flutter	0.08 % (WRMS)
Frequency response	30 – 20,000 Hz
Signal-to-noise ratio	

Cassette type	Dolby B NR	Dolby C NR	Dolby NR off
TYPE II, III, IV	67 dB	73 dB	61 dB
TYPE I	64 dB	70 dB	58 dB

Tuner section

FM

Tuning range	87.5 – 107.9 MHz
Antenna terminal	External antenna connector
Intermediate frequency	10.7 MHz
Usable sensitivity	8 dBf
Selectivity	75 dB at 400 kHz
Signal-to-noise ratio	65 dB (stereo), 68 dB (mono)
Harmonic distortion at 1 kHz	0.5% (stereo), 0.3% (mono)
Separation	35 dB at 1 kHz
Frequency response	30 – 15,000 Hz
Capture ratio	2 dB

AM

Tuning range	530 – 1,710 kHz
Antenna terminal	External antenna connector
Intermediate frequency	10.71 MHz/450 kHz
Sensitivity	30 μV

Power amplifier section

Outputs	Speaker outputs (sure seal connectors)
Speaker impedance	4 – 8 ohms
Maximum power output	40 W × 4 (at 4 ohms) 35 W × 4 (at AM band, 4 ohms)

General

Outputs	Line outputs (3) Power antenna relay control lead Power amplifier control lead
Tone controls	Bass ±8 dB at 100 Hz Treble ±8 dB at 10 kHz
Power requirements	12 V DC car battery (negative earth)
Dimensions	Approx. 184 × 50 × 176 mm (w/h/d)
Mounting dimensions	Approx. 182 × 53 × 163 mm (w/h/d)
Mass	Approx. 1.3 kg
Supplied accessories	Parts for installation and connections (1 set) Front panel case (1) Rotary commander RM-X2S (1)

Design and specifications are subject to change without notice.

FM/AM CASSETTE CAR STEREO

SONY®

MICROFILM

TABLE OF CONTENTS

1. GENERAL

Location of Controls 3
Resetting the Unit 4
Detaching the Font Panel 4
Preparing the Rotary Commander 4
Setting the Clock 4
Installation 5
Connections 6

2. DISASSEMBLY 8

3. ASSEMBLY OF MECHANISM DECK 11

4. MECHANICAL ADJUSTMENTS 14

5. ELECTRICAL ADJUSTMENTS

Test Mode 14
Tape Deck Section 14
Tuner Section 15

6. DIAGRAMS

6-1. IC Pin Function Description 18
6-2. Printed Wiring Board – MAIN Section – 25
6-3. Schematic Diagram – MAIN Section – 29
6-4. Printed Wiring Boards – PANEL Section – 33
6-5. Schematic Diagram – PANEL Section – 35

7. EXPLODED VIEWS 41

8. ELECTRICAL PARTS LIST 44

Flexible Circuit Board Repairing

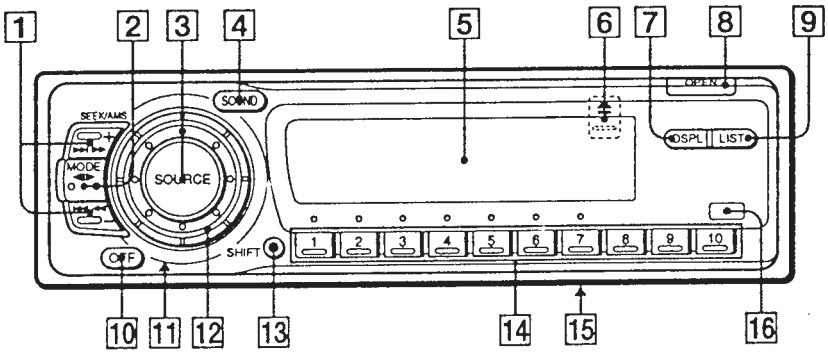
- Keep the temperature of the soldering iron around 270 ˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

This section is extracted from instruction manual.

Location of controls



EN

Refer to the pages for details.

1 SEEK/AMS (seek/Automatic Music Sensor/manual search) button 5, 6, 7, 8, 12, 13, 14, 17

2 MODE (band select, unit select, tape transport direction) button 5, 7, 8, 12, 13, 16

3 SOURCE (source select) button 5, 7, 8, 10, 12, 13, 14

4 SOUND button 10

5 Display window

6 ⏏ (eject) button (located on the front of the unit hidden by the front panel) 5

7 DSPL button (display mode change) button 6, 8, 9, 12, 16

8 OPEN button 4, 5, 18

9 LIST button
Disc Memo 15
List-up 9, 15
Station Memo 8

10 OFF button 4, 5

11 Reset button (located on the front of the unit hidden by the front panel) 4

12 Dial (volume/subwoofer volume/bass/treble/left-right/front-rear) 5, 15

13 SHIFT button
BTM 7
SET UP 5, 10, 11, 12
PLAY MODE 6, 7, 12, 13, 14, 15, 16, 17

14 During radio reception:

Preset number buttons 7, 8

During CD/MD playback:

Direct disc selection buttons 12

15 POWER SELECT switch (located on the bottom of the unit)
See "POWER SELECT switch" in the Installation/Connections manual.

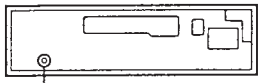
16 Receptor for wireless remote

Getting Started

Resetting the unit

Before operating the unit for the first time or after replacing the car battery, you must reset the unit.
Press the reset button with a pointed object such as a ball-point pen.

Front panel detached



Reset button

Note
Pressing the reset button will erase the clock and some memorized functions.

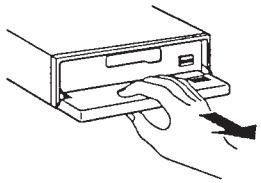
EN

Detaching the front panel

You can detach the front panel of this unit to prevent the unit from being stolen.

1 Press (OFF).

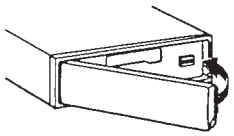
2 Press (OPEN) to open up the front panel, then pull it off towards you.



Notes
- *Do not put anything on the inner surface of the front panel.*
- *Be sure not to drop the panel when detaching it from the unit.*
- *If you detach the panel while the unit is still on, the power will turn off automatically to prevent the speakers from being damaged.*
- *When you carry the front panel with you, put it in the supplied front panel case.*

Attaching the front panel

Align the front panel with the unit, and push in.



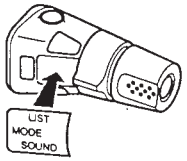
Notes
- *Be sure not to attach the front panel upside down.*
- *Do not press the front panel hard against the unit when attaching it. Press it lightly against the unit.*
- *Do not press hard or put excessive pressure on the display of the front panel.*
- *Do not expose the front panel to direct sunlight, heat sources such as hot air ducts, and do not leave it in a humid place. Never leave it on the dashboard of a car parked in direct sunlight where there may be a considerable rise in temperature.*

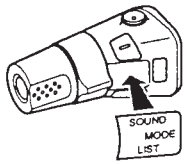
Caution alarm

If you turn the ignition key switch to the OFF position without removing the front panel, the caution alarm will beep for a few seconds (only when the POWER SELECT switch on the bottom of the unit is set to the Ⓐ position).

Preparing the rotary commander

When you mount the rotary commander, attach the label in the illustration below.



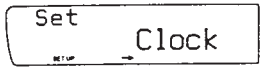


Setting the clock

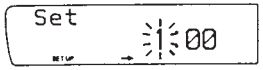
The clock has a 12-hour digital indication.

Example: Set the clock to 10:08

1 Press (SHIFT), then press (2) (SET UP).



❶ Press (4) (→).



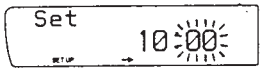
The hour digit flashes.

❷ Set the hour.

to go backward

to go forward

❸ Press (4) (→).

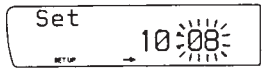


The minute digits flash.

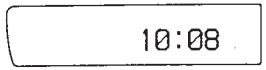
❹ Set the minute.

to go backward

to go forward



2 Press (SHIFT).



The clock starts.

Note
If the POWER SELECT switch on the bottom of the unit is set to the Ⓑ position, turn the power on first, then set the clock. To turn the power on, press (SOURCE).

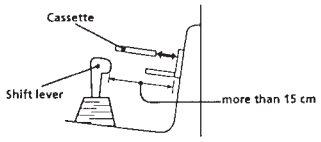
Installation

Precautions

- Do not tamper with the four holes on the upper surface of the unit. They are used for tuner adjustments to be made only by service technicians.
- If you mount other Sony equipment with this unit, it is better to mount this unit in the lower position.
- There must be a distance of at least 15 cm between the cassettes slot of the unit and shift lever to insert cassette easily. Choose the installation location carefully so the unit does not interfere with gear shifting and other driving operations.
- Choose the mounting location carefully so the unit does not interfere with normal driving operations.
- Avoid installing the unit where it would be subject to high temperatures, such as from direct sunlight or hot air from the heater, or where it would be subject to dust, dirt or excessive vibration.
- Use only the supplied mounting hardware for safe and secure installation.

Mounting angle adjustment

Adjust the mounting angle to less than 20°.



How to detach and attach the front panel

Before installing the unit, detach the front panel.

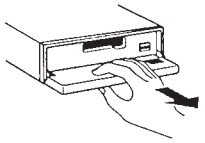
To detach

Before detaching the front panel, be sure to press (OFF) first.
Press (OPEN) to open up the front panel, then pull it off towards you.

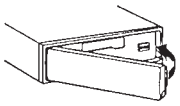
To attach

Align the front panel to the unit , and push in.

To detach



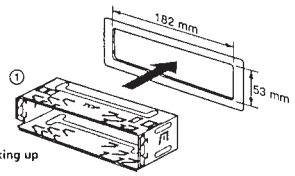
To attach



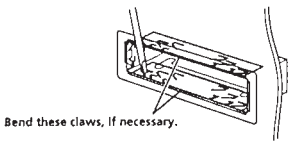
Mounting example

Installation in the dashboard

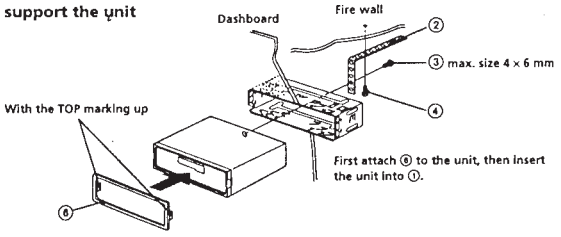
1



2



3 To support the unit



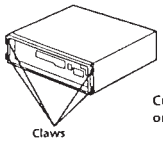
Caution

Cautionary notice for handling the bracket ①.
Handle the bracket carefully to avoid injuring your fingers.

Mounting the unit in a Japanese car

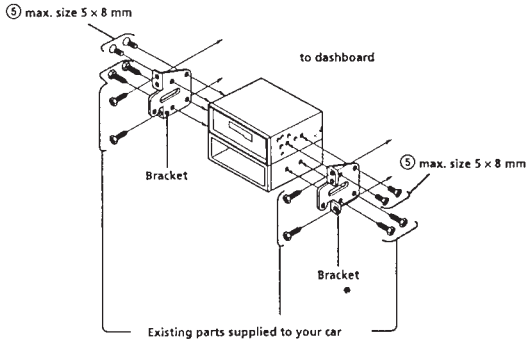
You may not be able to install this unit in some makes of Japanese cars. In such a case, consult your Sony dealer.

1

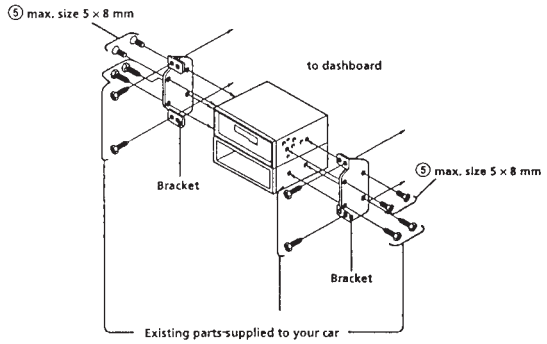


Cut all the claws from the unit with pincers or other suitable tool.

2 TOYOTA



NISSAN

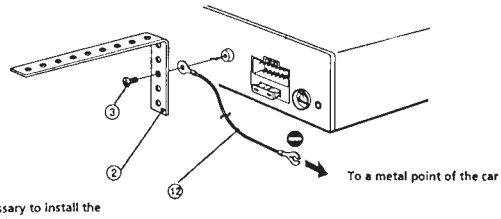


Notes

- *To prevent malfunction, install only with the supplied screws ⑥ and use existing parts supplied to your car.*
- *If you cannot mount the unit in the lower tier after cutting off all claws, install it in the upper tier.*

Note for Connecting

If there is alternator noise (a whining sound when the engine increases speed), ground the master unit by connecting it to a metal point of the car with the supplied chassis ground cord ⑫. Connect the ground cord to the master unit with a screw ③. (See illustration.)



It is not necessary to install the bracket ② with Japanese cars.

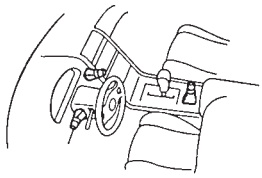
Connections

Installing the rotary commander

Notes

- *Choose the mounting location carefully so that the rotary commander will not interfere with operating the car.*
- *Do not install the rotary commander in a place where it may jeopardize the safety of the (front) passenger in anyway.*
- *When installing the rotary commander, be sure not to damage the electrical cables etc. on the other side of the mounting surface.*
- *Avoid installing the rotary commander where it may be subject to high temperatures, such as from direct sunlight or hot air from the heater etc.*

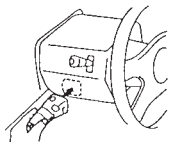
Example of a mounting location



1

Choose the exact location for the rotary commander to be mounted, then clean the mounting surface.

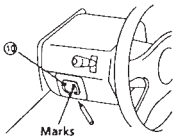
Dirt or oil impair the adhesive strength of the double-sided adhesive tape.



2

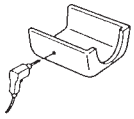
Mark two positions for the supplied screws.

Use the screw holes on the mounting hardware ⑩ to mark the positions.



3

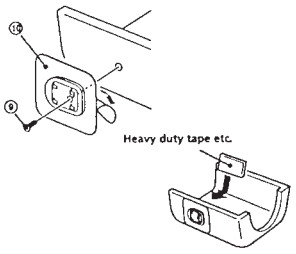
Remove the steering wheel column cover, and drill 2 mm diameter holes where you have marked.



4

Warm the mounting surface and the double-sided adhesive tape on the mounting hardware ⑩ to the temperature of 20°C to 30°C, and attach the mounting hardware onto the mounting surface by applying even pressure. Then screw it down with the supplied screws ⑨.

Attach a piece of heavy duty tape etc. on the other side of the mounting surface to cover the protruding tips of the screws so that they will not interfere with the electrical cables etc. inside the steering wheel column.

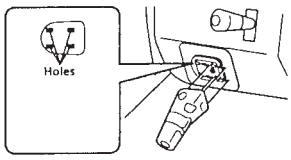


5

After installing the steering wheel column cover, attach the rotary commander to the mounting hardware by aligning the four holes on the bottom of the rotary commander to the four catches on the mounting hardware and sliding the rotary commander until it locks into place as illustrated.

Note

If you are mounting the rotary commander to the steering wheel column, make sure that the protruding tips of the screws on the inner surface of the column do not in anyway hinder or interfere with the movement of the rotating shaft, operative parts of the switches or the electrical cables etc. inside the column.



Caution

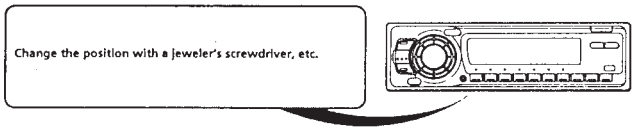
- This unit is designed for negative earth 12 V DC operation only.
- Before making connections, disconnect the earth terminal of the car battery to avoid short circuits.
- Connect the **yellow** and **red** power input leads only after all other leads have been connected.
- Be sure to connect the red power input lead to the positive 12 V power terminal which is energized when the ignition key is in the accessory position.
- **Run all earth wires to a common earth point.**
- Connect the yellow cord to a free car circuit rated higher than the unit's fuse rating. If you connect this unit in series with other stereo components, the car circuit they are connected to must be rated higher than the sum of the individual components' fuse rating. If there are no car circuits rated as high as the unit's fuse rating, connect the unit directly to the battery. If no car circuits are available for connecting this unit, connect the unit to a car circuit rated higher than the unit's fuse rating in such a way that if the unit blows its fuse, no other circuits will be cut off.

If your car has no accessory position on the ignition key switch — POWER SELECT switch

The illumination on the front panel is factory set to be turned on even when the unit is not being played. However, this setting may cause some car battery wear **If your car has no accessory position on the ignition key switch.** To avoid this battery wear, **set the POWER SELECT switch located on the bottom of the unit to the ⓐ position, then press the reset button.** The illumination is reset to stay off while the unit is not being played.

Note

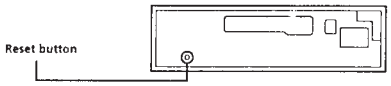
The caution alarm for the front panel is not activated when the POWER SELECT switch is set to the ⓐ position.



When you change the position of the switch, be sure to press the reset button after the connections are completed.

Reset Button

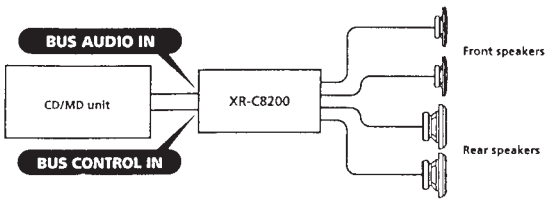
When the installation and connections are complete, be sure to press the reset button with a ball-point pen etc.



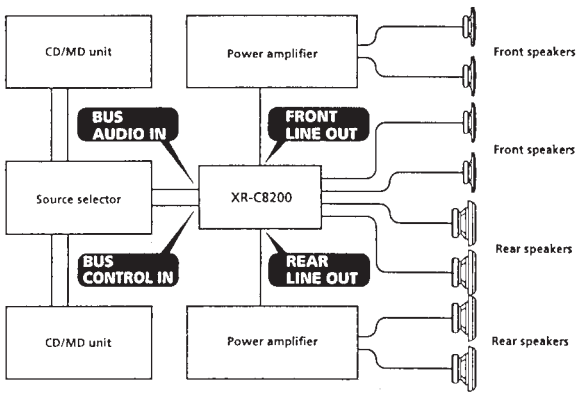
Connection Diagram

If you connect an optional power amplifier and do not use the built-in amplifier, the beep-tone will be disabled.
For connecting two or more changers, the source selector XA-C30 (optional) and the BUS cable RC-61 (1 m) or RC-62 (2 m) (optional) are necessary.

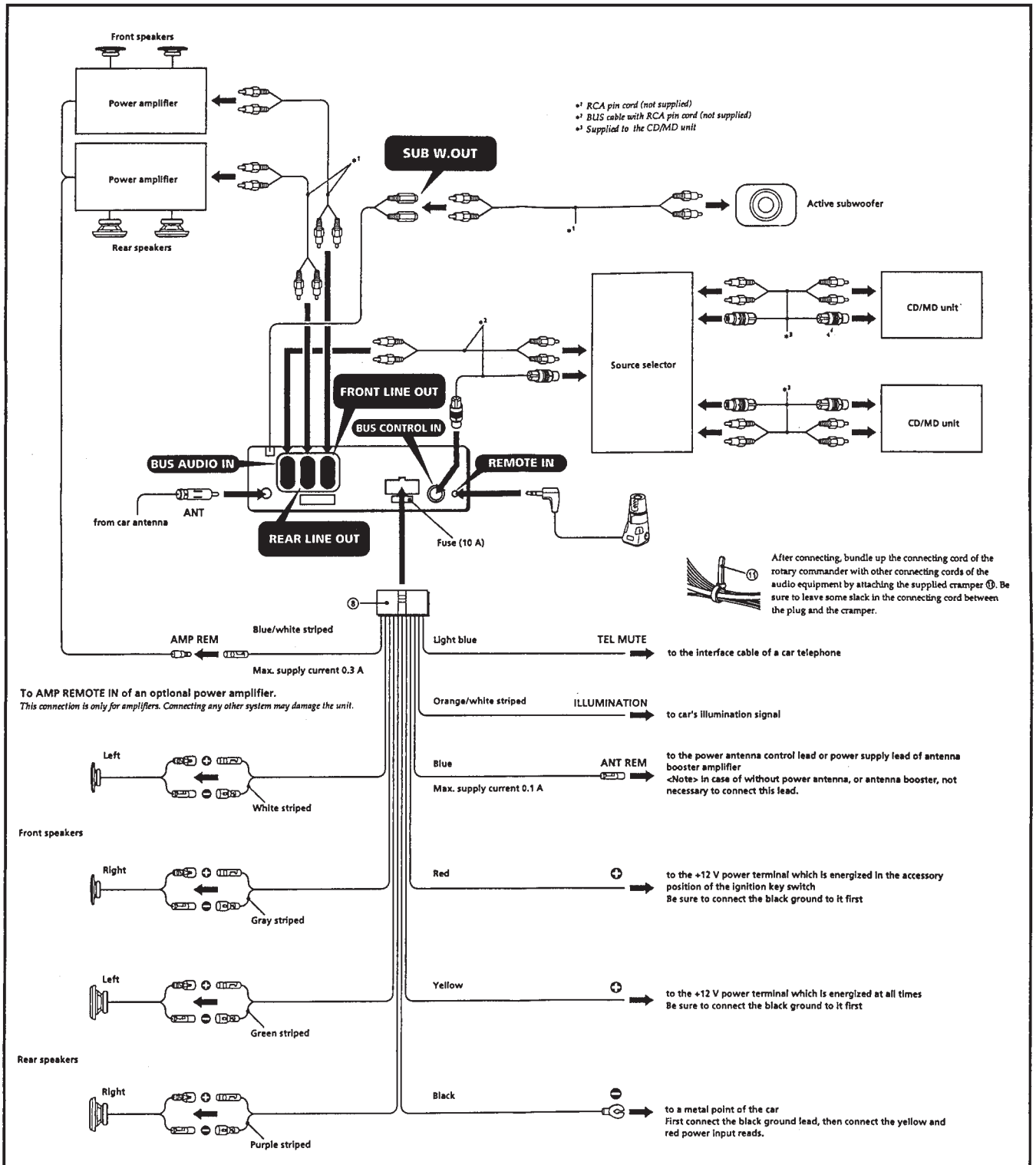
Example 1



Example 2



Connection example


Front speakers
Power amplifier
Power amplifier
Rear speakers
*1 RCA pin cord (not supplied)
*2 BUS cable with RCA pin cord (not supplied)
*3 Supplied to the CD/MD unit
SUB W.OUT
Active subwoofer
Source selector
CD/MD unit
CD/MD unit
FRONT LINE OUT
BUS CONTROL IN
BUS AUDIO IN
REMOTE IN
ANT
from car antenna
REAR LINE OUT
Fuse (10 A)
After connecting, bundle up the connecting cord of the rotary commander with other connecting cords of the audio equipment by attaching the supplied cramper ⑪. Be sure to leave some slack in the connecting cord between the plug and the cramper.
⑧
AMP REM
Blue/white striped
Max. supply current 0.3 A
Light blue
TEL MUTE
to the interface cable of a car telephone
To AMP REMOTE IN of an optional power amplifier.
This connection is only for amplifiers. Connecting any other system may damage the unit.
Orange/white striped
ILLUMINATION
to car's illumination signal
Left
White striped
Blue
ANT REM
Max. supply current 0.1 A
to the power antenna control lead or power supply lead of antenna booster amplifier
<Note> In case of without power antenna, or antenna booster, not necessary to connect this lead.
Front speakers
Right
Gray striped
Red
to the +12 V power terminal which is energized in the accessory position of the ignition key switch
Be sure to connect the black ground to it first
Left
Green striped
Yellow
to the +12 V power terminal which is energized at all times
Be sure to connect the black ground to it first
Rear speakers
Right
Purple striped
Black
to a metal point of the car
First connect the black ground lead, then connect the yellow and red power input reads.

Notes on the control leads

- *The power antenna control lead (blue) supplies +12 V DC when you turn on the tuner or when you activate the ATA (Automatic Tuner Activation) Function.*
- *A power antenna without relay box cannot be used with this unit.*

Memory hold connection

When the yellow power input lead is connected, power will always be supplied to the memory circuit even when the ignition key is turned off.

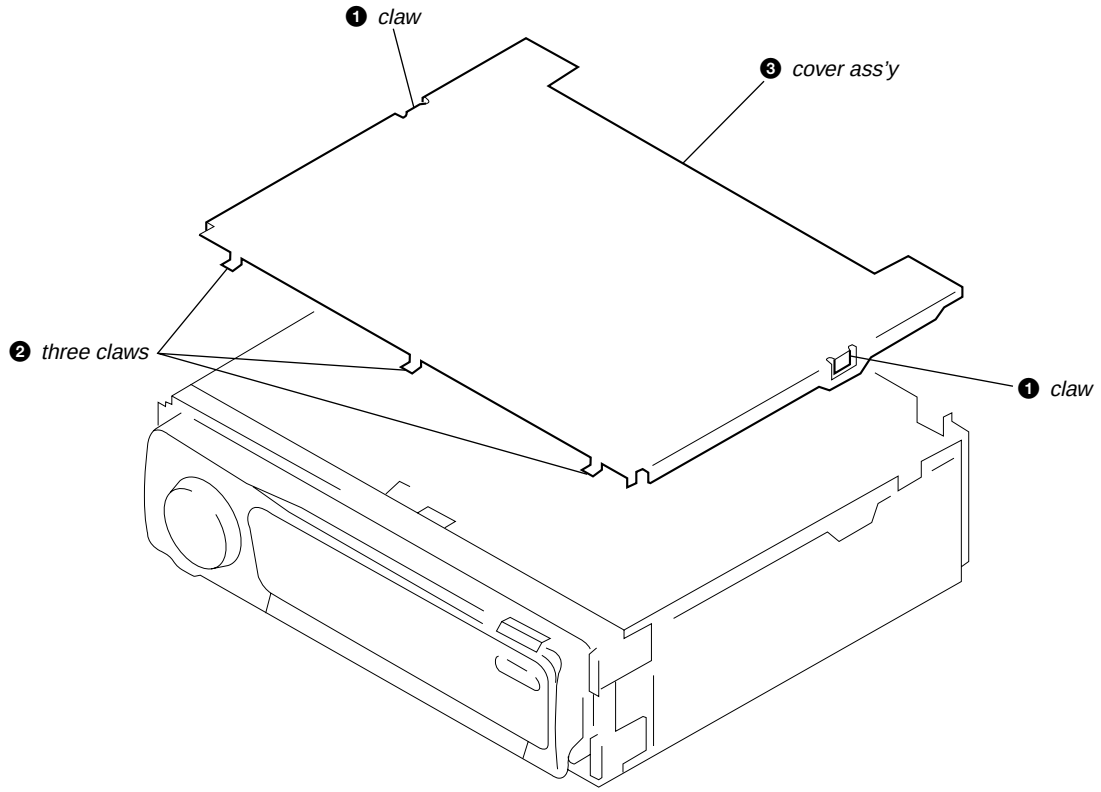
Notes on speaker connection

- *Before connecting the speakers, turn the unit off.*
- *Use speakers with an impedance of 4 to 8 ohms, and with adequate power handling capacities. Otherwise, the speakers may be damaged.*
- *Do not connect the terminals of the speaker system to the car chassis, and do not connect the terminals of the right speaker with those of the left speaker.*
- *Do not attempt to connect the speakers in parallel.*
- *Do not connect any active speakers (with built-in amplifiers) to the speaker terminals of the unit. Doing so may damage the active speakers. Therefore, be sure to connect passive speakers to these terminals.*

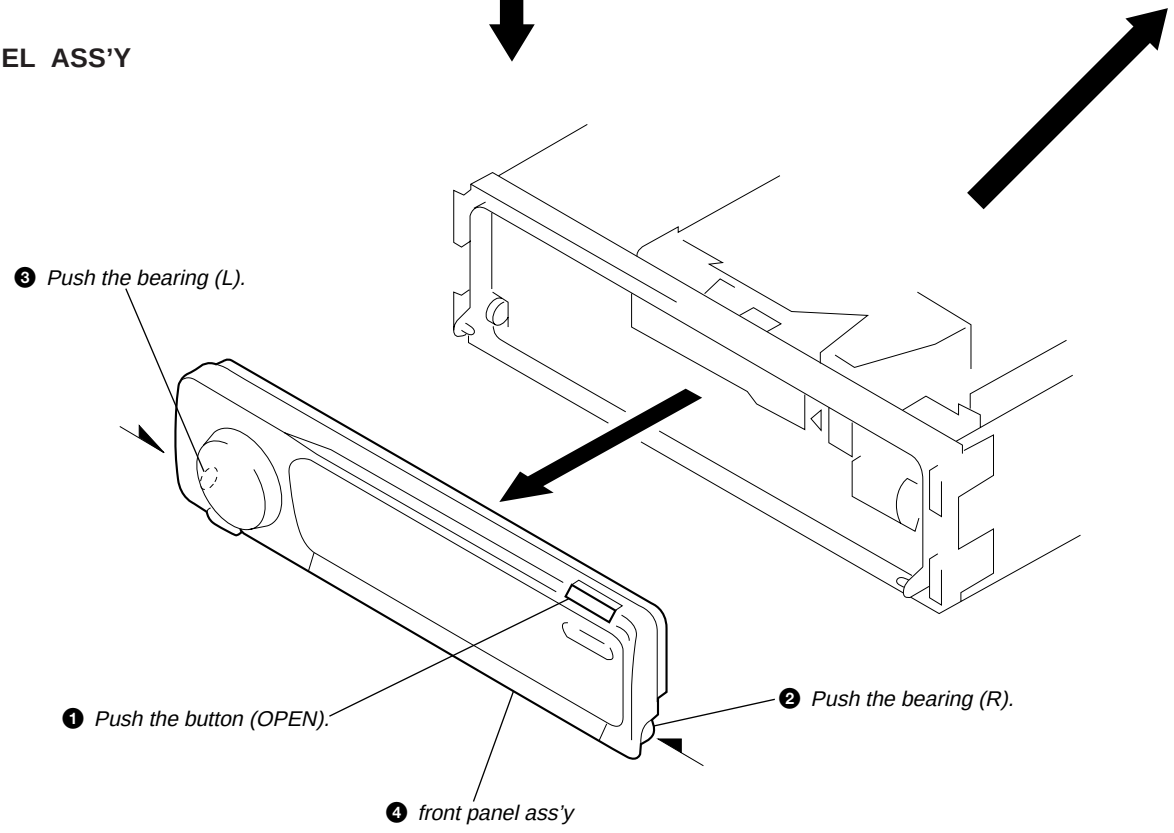
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

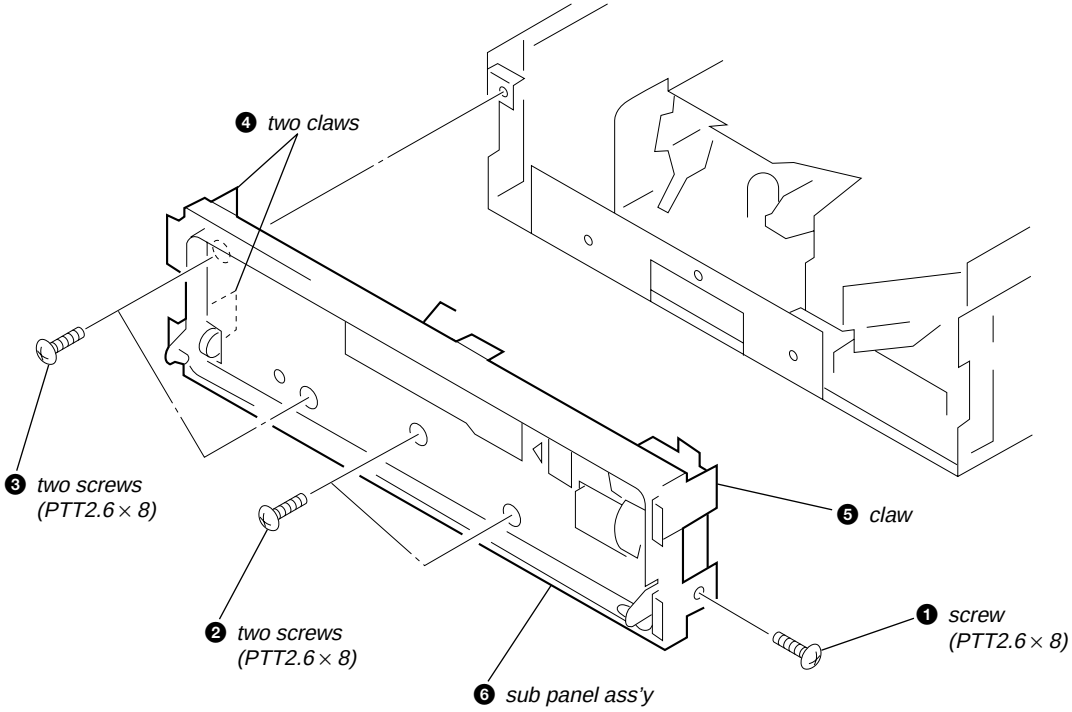
COVER ASS'Y



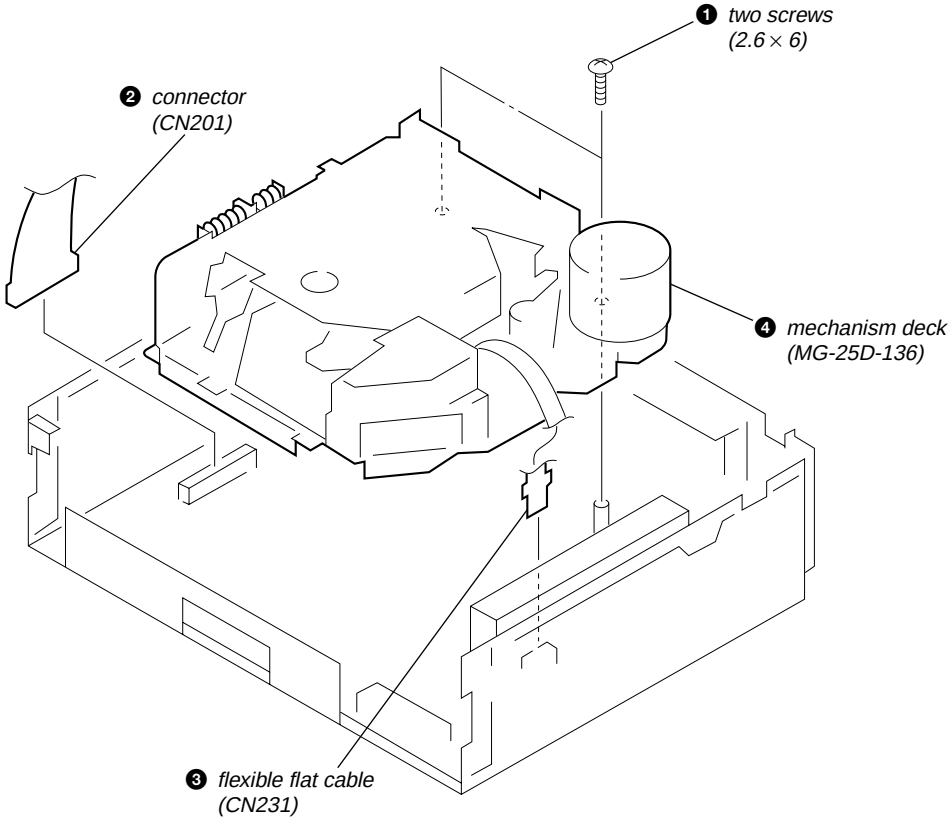
FRONT PANEL ASS'Y



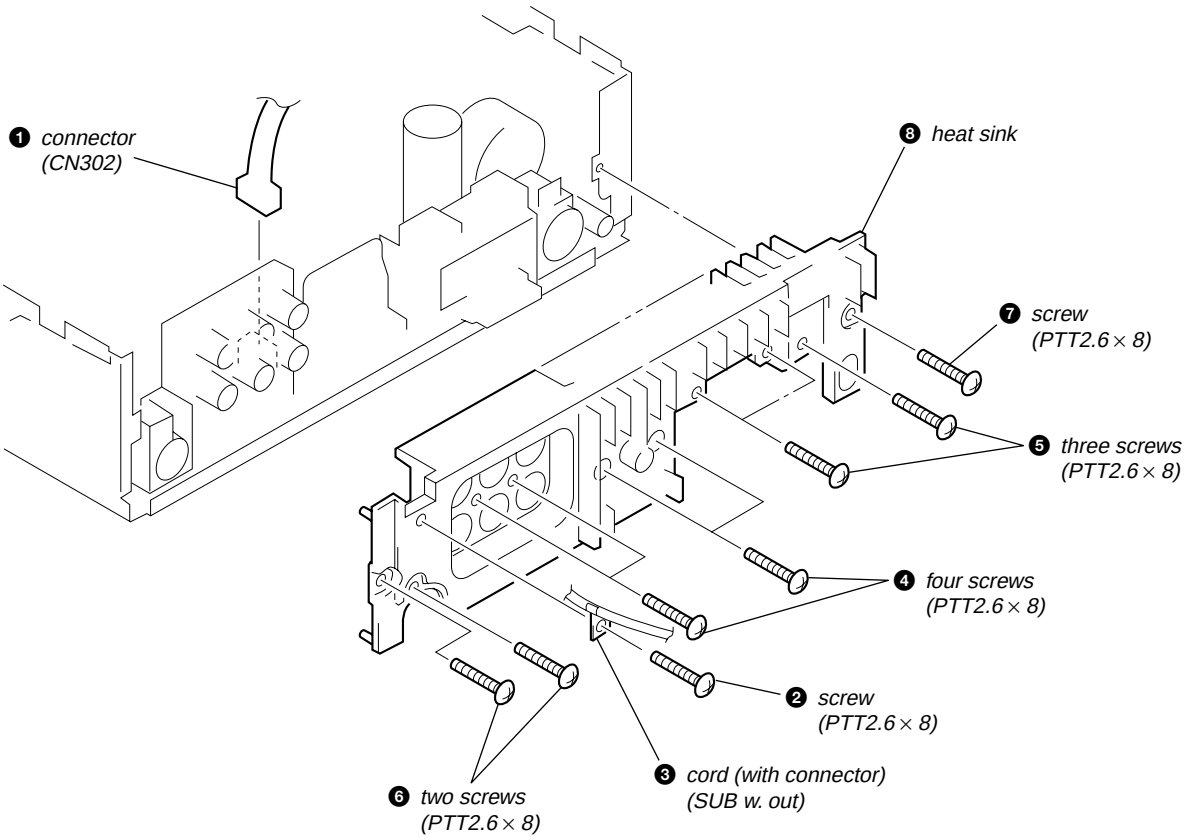
SUB PANEL ASS'Y



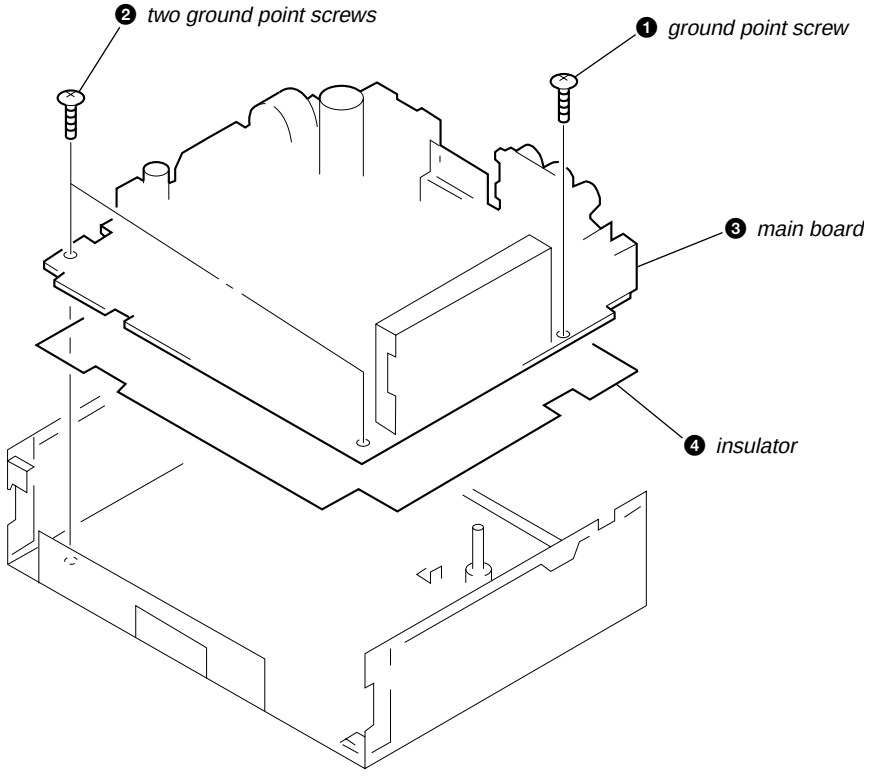
MECHANISM DECK (MG-25D-136)



HEAT SINK



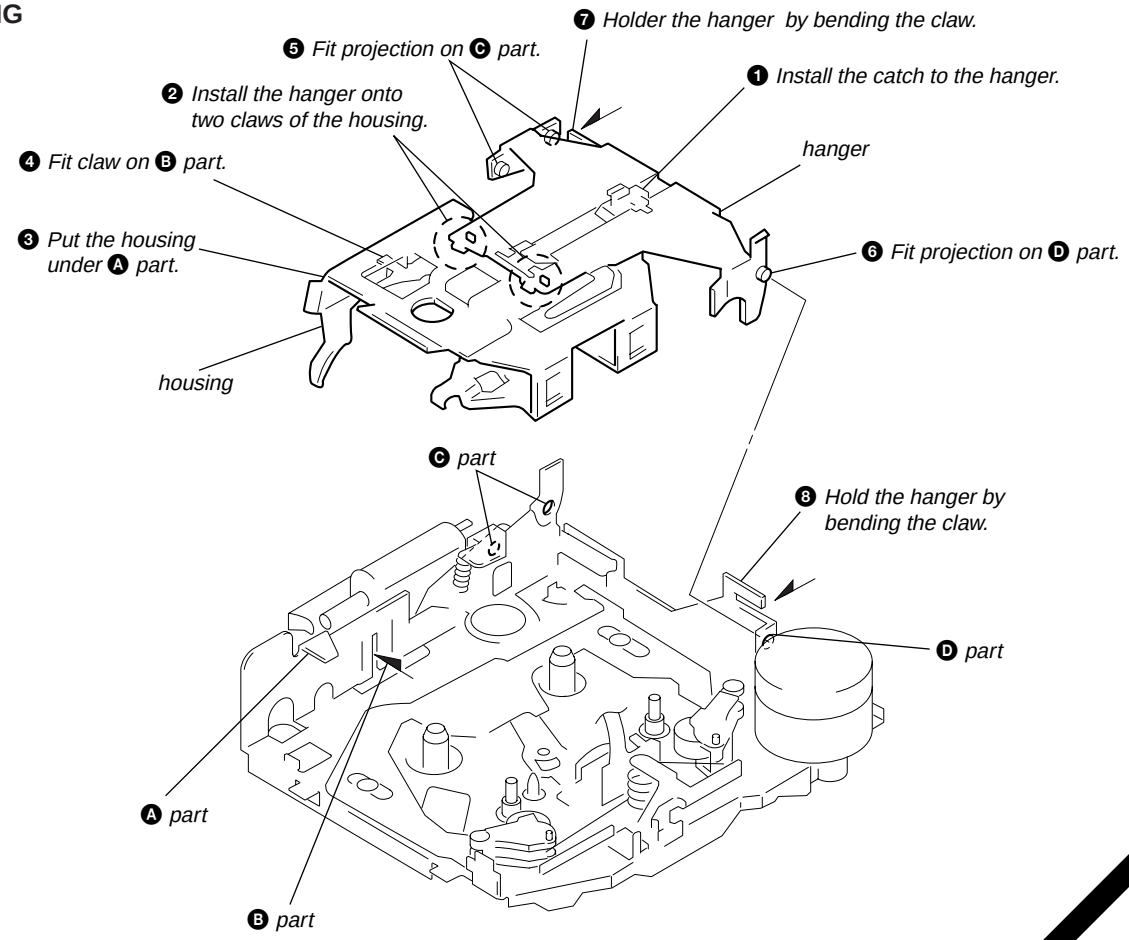
MAIN BOARD



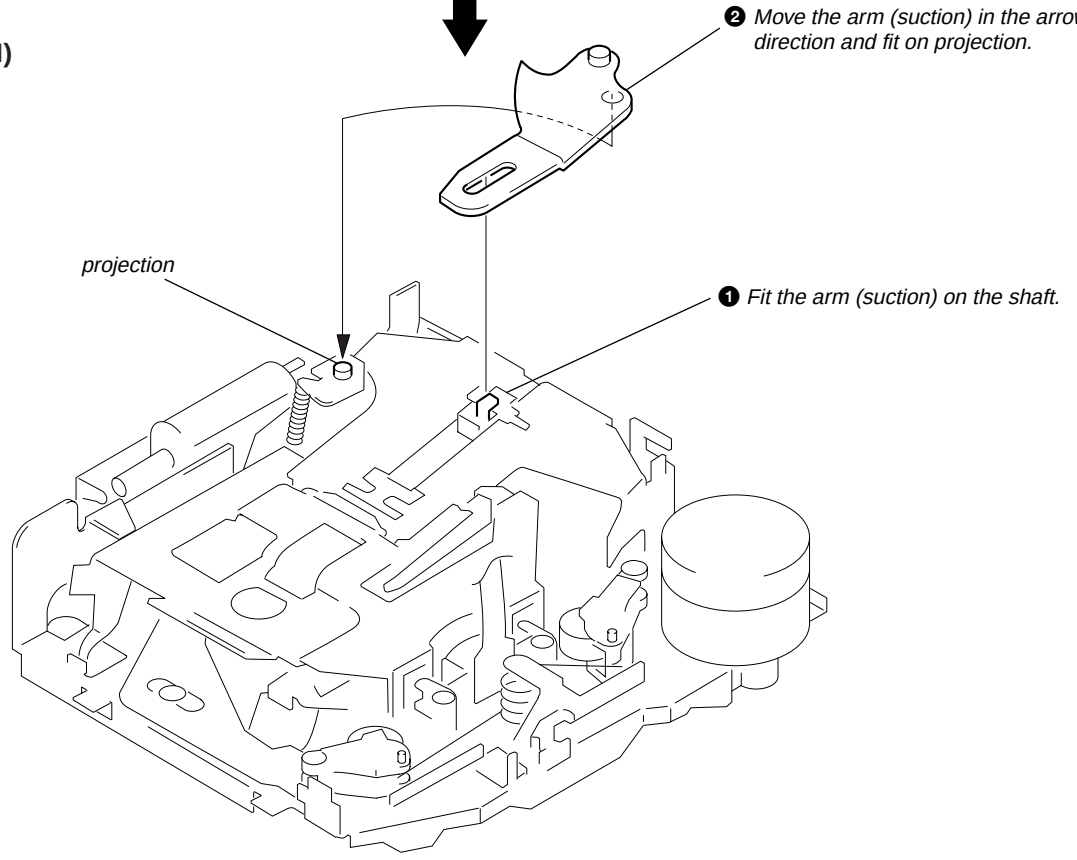
SECTION 3
ASSEMBLY OF MECHANISM DECK

Note: Follow the assembly procedure in the numerical order given.

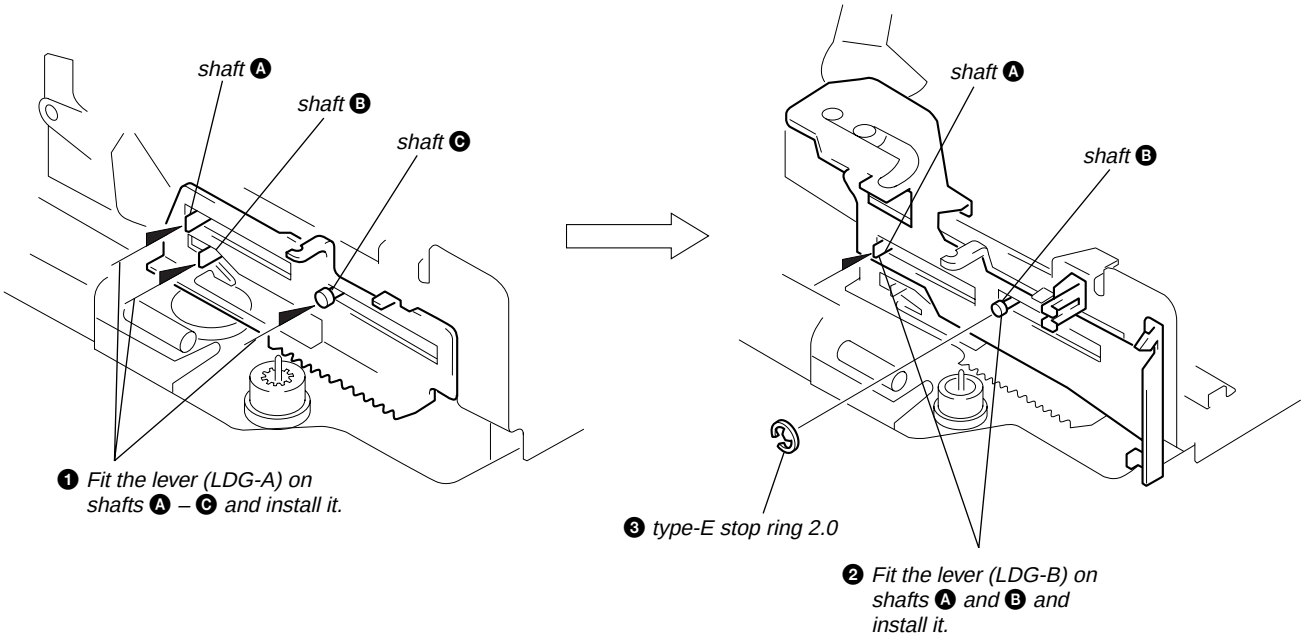
HOUSING


❼ Holder the hanger by bending the claw.
❺ Fit projection on Ⓒ part.
❶ Install the catch to the hanger.
❷ Install the hanger onto two claws of the housing.
hanger
❹ Fit claw on Ⓑ part.
❸ Put the housing under Ⓐ part.
❻ Fit projection on Ⓓ part.
housing
Ⓒ part
❽ Hold the hanger by bending the claw.
Ⓓ part
Ⓐ part
Ⓑ part

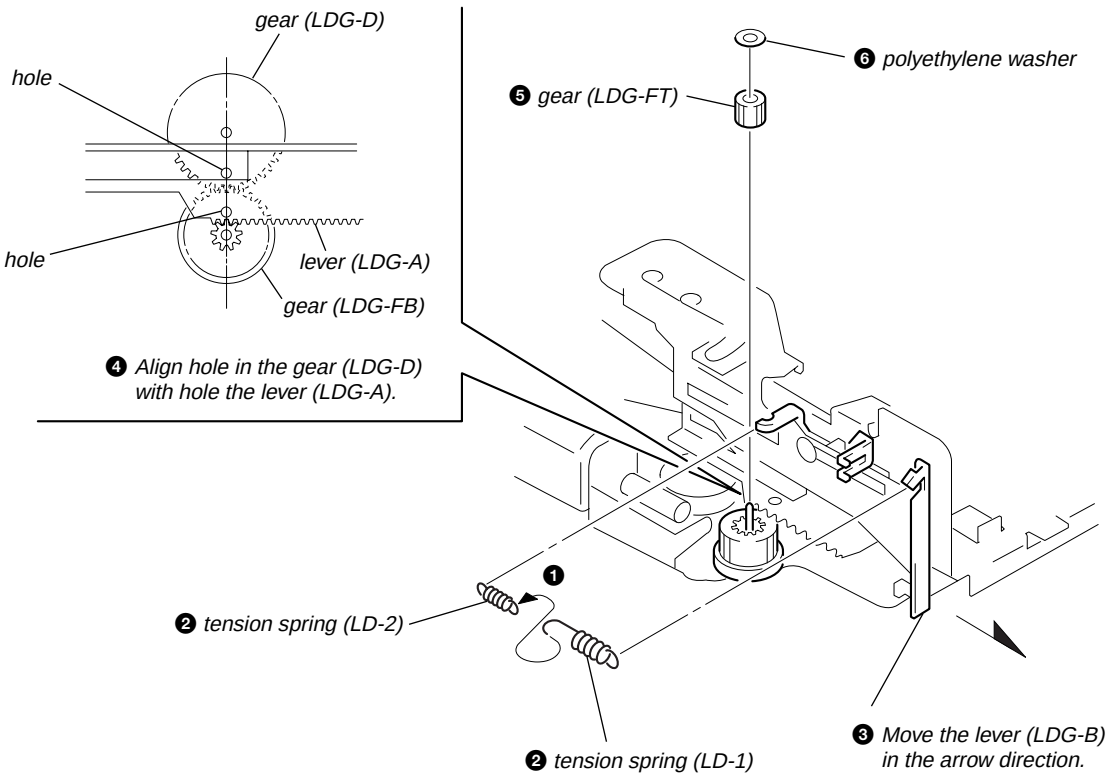
ARM (SUCTION)



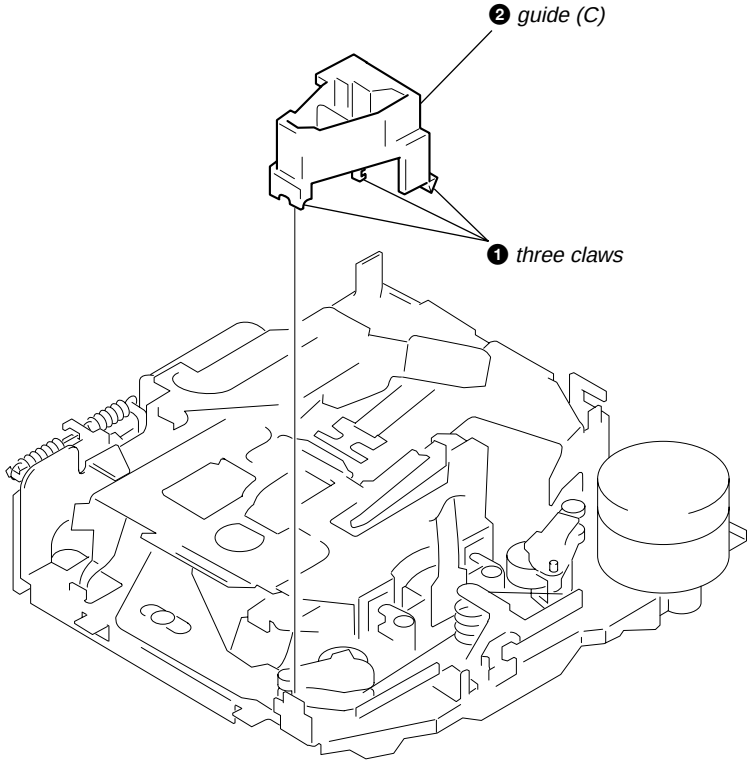
LEVER (LDG-A) / (LDG-B)


shaft Ⓐ
shaft Ⓑ
shaft Ⓒ
❶ Fit the lever (LDG-A) on shafts Ⓐ – Ⓒ and install it.
shaft Ⓐ
shaft Ⓑ
❸ type-E stop ring 2.0
❷ Fit the lever (LDG-B) on shafts Ⓐ and Ⓑ and install it.

GEAR (LDG-FT)



GUIDE (C)



SECTION 4
MECHANICAL ADJUSTMENTS

1. Clean the following parts with a denatured-alcohol-moistened swab:
   playback head pinch roller
   rubber belt capstan
   idles
2. Demagnetize the playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the power supply voltage unless otherwise noted.

• Torque Measurement

Mode	Torque Meter	Meter Reading
Forward	CQ-102C	30 - 65 g•cm (0.42 - 0.90 oz•inch)
Forward Back Tension	CQ-102C	0.5 - 4.5g•cm (0.01 - 0.06 oz•inch)
Reverse	CQ-102RC	30 - 65 g•cm (0.42 - 0.90 oz•inch)
Reverse Back Tension	CQ-102RC	0.5 - 4.5g•cm (0.01 - 0.06 oz•inch)
FF, REW	CQ-201B	60 - 200 g•cm (0.83 - 2.78 oz•inch)

• Tape Tension Measurement

Mode	Tension Meter	Meter Reading
Forward	CQ-403A	more than 90 g (more than 3.18 oz)
Reverse	CQ-403R	more than 90 g (more than 3.18 oz)

SECTION 5
ELECTRICAL ADJUSTMENTS

TEST MODE

This set have the test mode function. In the test mode, FM Auto Scan/Stop Level and AM Auto Scan/Stop Level adjustments can be performed easier than it in ordinary procedure.

<Set the Test Mode>

1. Set the "power select" switch (S501) is "A (ON)" position.
2. Turn ON the regulated power supply. (All LEDs on the set lights up, and the clock is displayed.)
   Note: Press the [OFF] button, if the clock is not displayed.
3. Push the preset [4] button.
4. Push the preset [5] button.
5. Press the preset [1] button for more than two seconds.
6. Then the display indicates all lights, the test mode is set.

<Release the Test mode>

1. Push the [OFF] button.
2. Return the "power select" switch (S501) to initially set position.

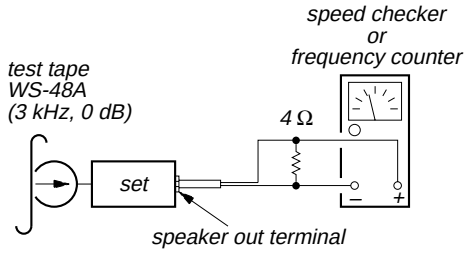
See the adjustment location from on page 17 for the adjustment.

TAPE DECK SECTION

0 dB=0.775 V

Tape Speed Adjustment

Setting:



Procedure:

1. Put the set into the FWD PB mode.
2. Adjust adjustment resistor for inside capstan motor so that the reading on the speed checker or frequency counter becomes in specification.

Specification: Constant speed

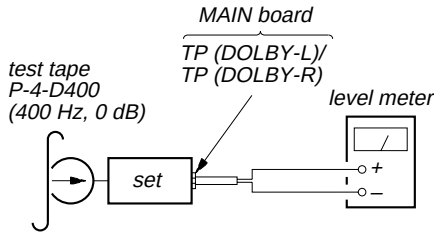
Speed checker	Frequency counter
–1.5 to +2.5%	2,955 to 3,075 Hz

Adjustment Location: See page 17.

Dolby Level Adjustment

setting:

SHIFT button	: ON (light up SET UP and PLAY MODE)
Preset 3 (PLAY MODE) button	: NR off
SOUND (BAS) button	: Center
SOUND (TRE) button	: Center
SOUND (BAL) button	: Center
SOUND (FAD) button	: Center
SOUND (VOL) button	: Maximum



Procedure:

1. Put the set into the FWD PB mode.
2. Adjust RV251 (L-CH) and RV261 (R-CH) so that the level meter reading is – 6 ± 0.5 dB (0.37 to 0.41 V).

Adjustment Location: See page 17.

TUNER SECTION

0 dB=1µV

Cautions during repair

When the tuner unit is defective, replace it by a new one because its internal block is difficult to repair.

Note:

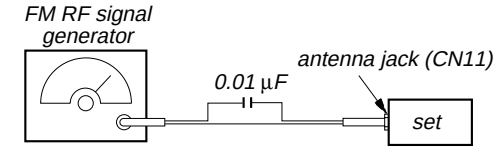
Adjust the tuner section in the sequence shown below.

1. FM Auto Scan/Stop Level Adjustment
2. FM Stereo Separation Adjustment
3. AM Auto Scan/Stop Level Adjustment

FM Auto Scan/Stop Level Adjustment

Setting:

SOURCE button : FM

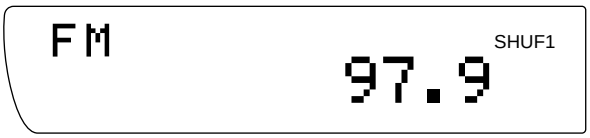


Carrier frequency : 97.9 MHz
Output level : 22 dB (12.6 µV)
Mode : mono
Modulation : 1 kHz, 22.5kHz deviation (30%)

Procedure:

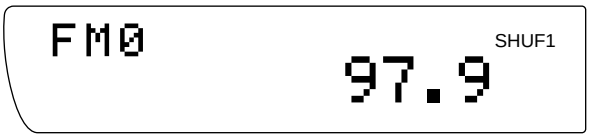
1. Set to the test mode. (See page 14.)
2. Push the SOURCE button and set to FM.

Display



3. Adjust with the volume RV2 on TU11 so that the "FM" indication turns to "FM0" indication on the display window. But, in case of already indicated "FM0", turn the RV2 so that put out light "0" indication and adjustment.

Display

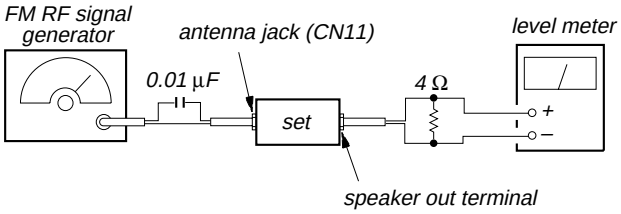


Adjustment Location: See page 17.

FM Stereo Separation Adjustment

Setting:

SOURCE button : FM



Carrier frequency : 97.9 MHz
Output level : 70 dB (3.2 mV)
Mode : stereo
Modulation : main : 1 kHz, 33.75 kHz deviation (45%)
sub : 1 kHz, 33.75 kHz deviation (45%)
19 kHz pilot: 7.5 kHz deviation (10%)

Procedure:

FM Stereo signal generator output channel	Level meter connection	Level meter reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RV4 on TU11 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RV4 on TU11 for minimum reading.

L-CH Stereo separation: Ⓐ-Ⓑ
R-CH Stereo separation: Ⓒ-Ⓓ
The separations of both channels should be equal.

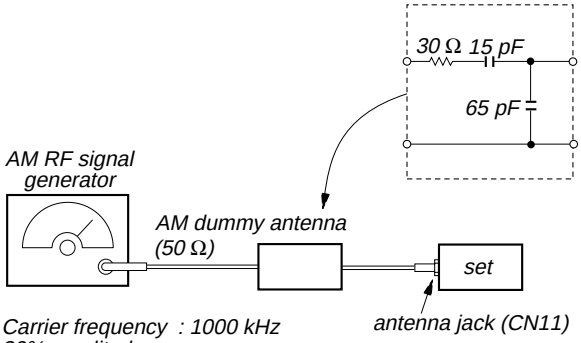
Specification: Separation more than 28 dB

Adjustment Location: See page 17.

AM Auto Scan/Stop Level Adjustment

Setting:

SOURCE → MODE button : AM



Carrier frequency : 1000 kHz
30% amplitude modulation by 1 kHz signal
Output level : 33 dB (44.7 µV)

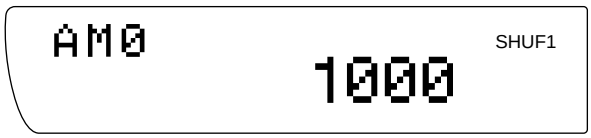
Procedure:

1. Set to the test mode. (See page 14.)
2. Push the SOURCE button and set to FM.
3. Push the MODE button and set to AM .

Display

4. Adjust with the volume RV1 on TU11 so that the “AM” indication turns to “AM0” indication on the display window. But, in case of already indicated “AM0”, turn the RV1 so that put out light “0” indication and adjustment.

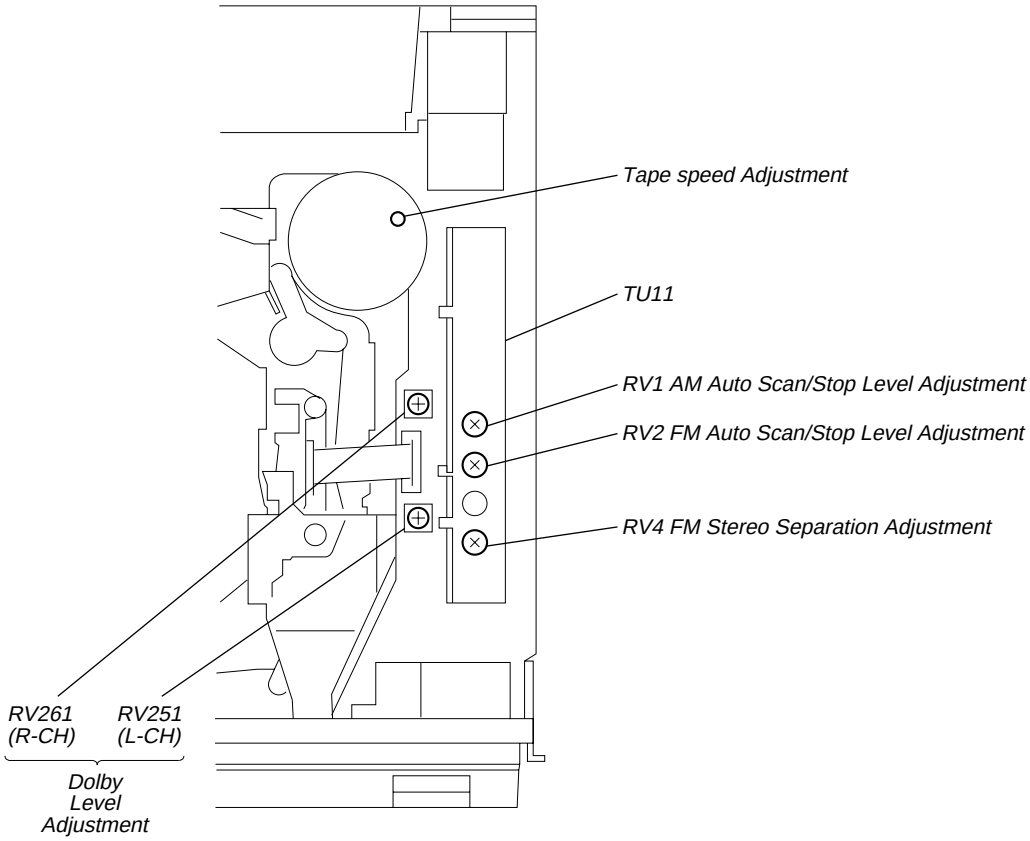
Display



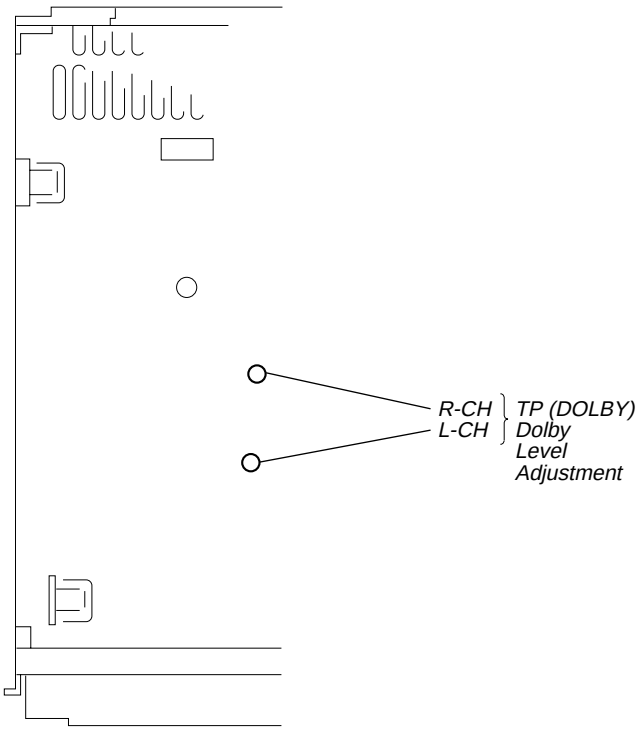
Adjustment Location: See page 17.

Adjustment Location :

– SET UPPER VIEW –



— SET BOTTOM VIEW —



SECTION 6
DIAGRAMS

6-1. PIN FUNCTION DESCRIPTION

• MAIN BOARD IC101 μPD78013GC-761-AB8 (TUNER CONTROLLER)

Pin No.	Pin Name	I/O	Function
1	TUNON	O	Tuner system power supply on/off control signal output to the BA3918 (IC601) "H": tuner on
2	FM ON	O	FM system power supply on/off control signal output to the BA3918 (IC601) "H": FM on
3 to 8	NCO	O	Not used (open)
9	VSS	—	Ground terminal
10 to 23	NCO	O	Not used (open)
24	VSS	—	Ground terminal
25 to 32	NCO	O	Not used (open)
33	TUNMUT	O	FM and AM signal muting on/off control output "H": muting on
34	RAMBU	I	Internal RAM reset detection signal input from the RN5VD23AA (IC552) Input terminal to check that RAM data are not destroyed due to low voltage This checking is made within 100 msec after reset
35	$\overline{\text{RESET}}$	I	System reset signal input from the system controller (IC501), reset signal generator (IC551) and reset switch (S551) "L" is input for several 100 msec after power on, then it changes to "H"
36	NCO	O	Not used (open)
37	BU IN	I	Battery detect signal input from the SONY bus interface (IC571) and battery check circuit "H": battery on
38	NCO	O	Not used (open)
39	$\overline{\text{BUSON}}$	I	Bus on/off control signal input from the system controller (IC501) (for SONY bus) "L": bus on
40	VDD	—	Power supply terminal (+5V)
41	OSCOUT	O	Main system clock output terminal (8 MHz)
42	OSCIN	I	Main system clock input terminal (8 MHz)
43	GND	—	Ground terminal
44	XT OUT	O	Sub system clock output terminal Not used (pull down)
45	XT IN	I	Sub system clock input terminal Not used (fixed at "L")
46	AVSS	—	Ground terminal (for A/D converter)
47	VSM	I	FM and AM signal meter voltage detection input from the FM/AM tuner unit (TU11)
48	DSTSEL1	I	Destination setting terminal (fixed at "L")
49	DSTSEL0	I	Destination setting terminal (fixed at "H")
50	SD IN	I	Station detector detect input from the FM/AM tuner unit (TU11) Stop level for SEEK, BTM, etc. is determined SD is present at input of "H"
51	$\overline{\text{ST MONO}}$	I/O	Input of FM stereo detection signal from FM/AM tuner unit (TU11), and output of forced monaural control signal to FM/AM tuner unit (TU11) (Commonly used for stereo display input and forced monaural output) FM stereo detection at input of "L", forced monaural at output of "L"
52 to 54	NIL	I	Not used (fixed at "L")
55	AVDD	—	Power supply terminal (+5V) (for A/D converter)
56	AVREF	I	Reference voltage input terminal (+5V) (for A/D converter)
57	PLL SI	I	PLL serial data input from the FM/AM PLL (IC91)
58	PLL SO	O	PLL serial data output to the FM/AM PLL (IC91)
59	PLLCKO	O	PLL serial data transfer clock signal output to the FM/AM PLL (IC91)
60	PLLCE	O	PLL serial chip enable output to the FM/AM PLL (IC91)
61	$\overline{\text{LINKOFF}}$	O	Unilink on/off control signal output (for SONY bus) "L": link off
62	UNISI	I	Serial data input from the SONY bus interface (IC571)
63	UNISO	O	Serial data output to the SONY bus interface (IC571)
64	UNICKI	I	Serial data reading clock signal input from the system controller (IC501) (for SONY bus)

• **MAIN BOARD IC501 μPD78058GC-463-3B9 (SYSTEM CONTROLLER)**

Pin No.	Pin Name	I/O	Function
1	RC IN0	I	Rotary remote commander shift key A/D input terminal
2	$\overline{\text{ILL.IN}}$	I	Dimmer detection signal input Dimmer is present at input of "L"
3	NIL	I	Not used (fixed at "L")
4	AVSS	—	Ground terminal (for A/D converter)
5	$\overline{\text{LCDANG}}$	O	Output signal for the LCD view angle adjustment
6	NIL	I	Not used (fixed at "L")
7	AVREF1	I	Reference voltage (+5V) input terminal (for D/A converter)
8	RE IN0	I	Rotary encoder (RE701) input terminal
9	RE IN1	I	Rotary encoder (RE701) input terminal
10	SUB-CONT1	O	Sub-woofer control signal output
11	SUB-CONT2	O	Sub-woofer control signal output
12	LCDSO	O	Serial data output to the liquid crystal display driver (IC701)
13	LCDCKO	O	Serial data transfer clock signal output to the liquid crystal display driver (IC701)
14	LCDCE	O	Chip enable output to the liquid crystal display driver (IC701)
15	$\overline{\text{LCDINH}}$	O	Blank indicate control signal output to the liquid crystal display driver (IC701) "L": no display
16	UNISI	I	Serial data input from the SONY bus interface (IC571)
17	UNISO	O	Serial data output to the SONY bus interface (IC571)
18	UNICKI	I	Serial data reading clock signal input terminal (for SONY bus)
19	UNICKO	O	Serial data transfer clock signal output to the tuner controller (IC101) and SONY bus interface (IC571)
20	$\overline{\text{BUSON}}$	O	Bus on/off control signal output to the tuner controller (IC101) and SONY bus interface (IC571) "L": bus on
21	$\overline{\text{SYSRST}}$	O	Reset signal output to the tuner controller (IC101) and SONY bus interface (IC571) "L": reset
22	AMPON	O	Standby control signal output to the power amplifier (IC701) "L": standby
23	—	—	Not used (open)
24	NCO	O	Not used (open)
25	PW ON	O	Main system power supply on/off control signal output to the BA3918 (IC601) "H": power on
26	ILLON	O	Power supply on/off control signal output terminal at the illumination and liquid crystal display driver (IC701) "H": power on At power select switch (S501) on mode: "H" output at the accessory on At power select switch (S501) off mode: "H" output at the power on
27	COLOR	O	Illumination color selection signal output "H": amber, "L": green
28	$\overline{\text{AMSON}}$	O	Tape auto music sensor control signal output to the CXA2511AQ (IC231) "L" is output to lower the gain for audio level at FF/REW
29	REL	I	Reel table rotation detect signal input from the take-up and supply reel sensor
30	$\overline{\text{MTLIN}}$	I	Auto METAL detect signal input from the METAL detect switch on the mechanism block
31	POS3	I	Tape position detect input from the tape operation switch on the mechanism block
32	POS2	I	
33	GND	—	Ground terminal
34	POS0	I	Tape position detect input from the tape operation switch on the mechanism block
35	POS1	I	
36	LM LOD	O	Loading/tape operation motor control signal output to the LB1638M (IC201) (For the loading direction and forward side operation) *1
37	LM EJ	O	Loading/tape operation motor control signal output to the LB1638M (IC201) (For the eject direction and reverse side operation) *1

Pin No.	Pin Name	I/O	Function
38	N/$\overline{R}$ OUT	O	Forward/reverse direction control signal output to the CXA2511AQ (IC231) "H: forward direction, "L": reverse direction
39	MTLON	O	METAL on/off control signal output to the CXA2511AQ (IC231) "H": METAL on
40	CM ON	O	Capstan/reel motor (M901) drive signal output terminal "H": motor on
41	TAPON	O	Tape system power supply on/off control signal output terminal "H": tape on
42	PW SEL	I	Power select switch (S501) input terminal "L": off (halt mode), "H": on (operation mode)
43	RC IN1	I	Rotary remote commander shift key A/D input terminal
44	$\overline{\text{TEST}}$	I	Setting terminal for the test mode "L": test mode (normally fixed at "H")
45	$\overline{\text{EQSEL}}$	I	Equalizer selection input terminal (fixed at "H")
46	BEEP	O	Beep sound drive signal output terminal
47	MUT	O	Muting control signal output to the line muting circuit and power amplifier (IC701) "H": muting on
48	VOLCE	O	Chip enable signal output to the main electrical volume (IC301)
49	SUBCE	O	Chip enable signal output to the sub electrical volume (IC382)
50	VOLCKO	O	Serial data transfer clock signal output to the main electrical volume (IC301)
51	SUBCKO	O	Serial data transfer clock signal output to the sub electrical volume (IC382)
52	VOLSO	O	Serial data output to the main electrical volume (IC301) and sub electrical volume (IC382)
53	TAPMUT	O	Tape muting on/off control signal output to the CXA2511AQ (IC231) "H": tape muting on
54	DOLON	O	Dolby on/off control signal output to the CXA2511AQ (IC231) "H": dolby on
55	DOLBC	I/O	Dolby B/C selection control in/out terminal At initial mode: dolby B only/dolby B and C type selection input ("L" input: dolby B and C) At normal mode: dolby type selection signal output to the CXA2511AQ (IC231) "L": dolby B, "H": dolby C
56	$\overline{\text{AMSIN}}$	I	Whether a music is present or not from CXA2511AQ (IC231) is detected at auto music sensor "L": music is present, "H": music is not present
57	DIMMER	O	Dimmer control signal output terminal
58	$\overline{\text{AD ON}}$	O	Power supply on/off control signal output for the A/D converter "L": power on
59	$\overline{\text{TIRIND}}$	O	LED drive signal output for the TIR indicator "L": LED on Not used (open)
60	$\overline{\text{RESET}}$	I	System reset signal input from the reset signal generator (IC551) and reset switch (S551) "L" is input for several 100 msec after power on, then it changes to "H"
61	SIRCS	I	Sircs signal input from the remote control receiver (IC702)
62	BU IN	I	Battery detect signal input from the SONY bus interface (IC571) and battery check circuit "H": battery on
63	$\overline{\text{DOORSW}}$	I	Door open/close detect input "L": door close
64	$\overline{\text{ACCIN}}$	I	Accessory detect signal input terminal "L": accessory on
65	$\overline{\text{NOSESW}}$	I	Detects the removal of the attaching and removing type front panel block "L": attaching
66	$\overline{\text{TELMUT}}$	I	Telephone muting signal input terminal At input of "L", the signal is attenuated by –20 dB
67	KEYACK	I	Input of acknowledge signal for the key entry Acknowledge signal is input to accept function and eject keys in the power off status On at input of "L"
68	VDD	—	Power supply terminal (+5V)
69	X OUT	O	Main system clock output terminal (5 MHz)
70	X IN	I	Main system clock input terminal (5 MHz)
71	GND	—	Ground terminal
72	XT OUT	O	Sub system clock output terminal (32.768 kHz)
73	XT IN	I	Sub system clock input terminal (32.768 kHz)
74	AVDD	—	Power supply terminal (+5V) (for A/D converter)
75	AVREF0	I	Reference voltage input terminal (+5V) (for A/D converter)

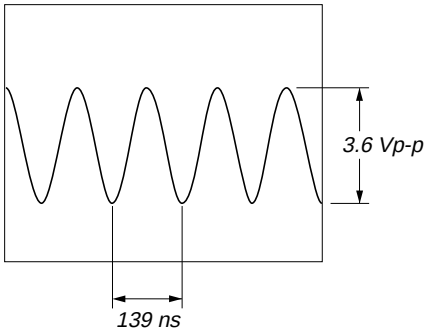
Pin No.	Pin Name	I/O	Function
76	KEYIN0	I	Key input terminal (A/D input) OFF, SOURCE, – ⏮ ◀◀, MODE ◀‖▶, + ▶▶⏭ ▶▶, SOUND, SHIFT, 1, 2, 3, 4 keys input (LSW700 to LSW710)
77	KEYIN1	I	Key input terminal (A/D input) ⏏, DSPL, LIST, 10, 9, 8, 7, 6, 5 keys input (LSW800, LSW711, LSW712 and LSW715 to LSW720)
78	KEYSEL0	I	Setting terminal for the key function select (fixed at “L”)
79	KEYSEL1	I	Setting terminal for the key function select (fixed at “L”)
80	NIL	I	Not used (fixed at “L”)

*1 loading/tape operation motor control

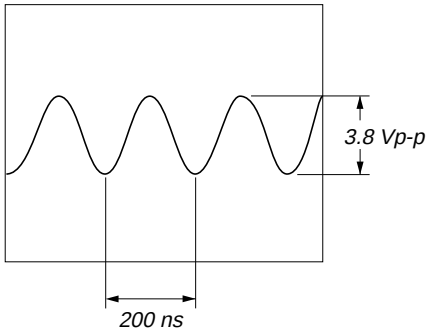
MODE / TERMINAL	STOP	LOADING/ FORWARD	EJECT/ REVERSE	BRAKE
LM LOD (pin ㊱)	“L”	“H”	“L”	“H”
LM EJ (pin ㊲)	“L”	“L”	“H”	“H”

• Waveforms
– MAIN BOARD –

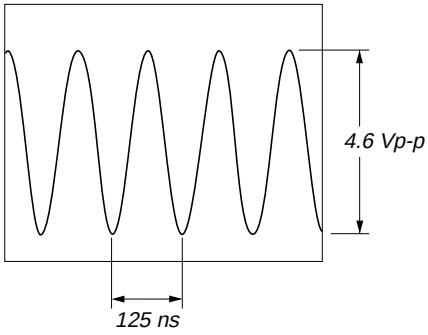
❶ IC91 ⑳ (X0)



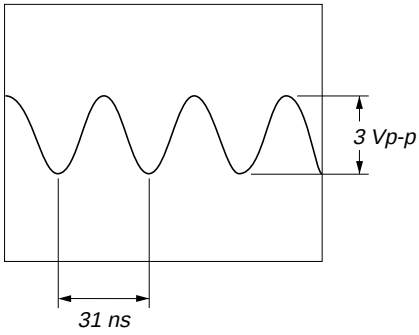
❸ IC501 ⑦⓪ (X_IN)



❷ IC101 ㊷ (OSCIN)



❹ IC501 ⑦③ (XT_IN)



6-2. PRINTED WIRING BOARD – MAIN Section –

• **Semiconductor Location**

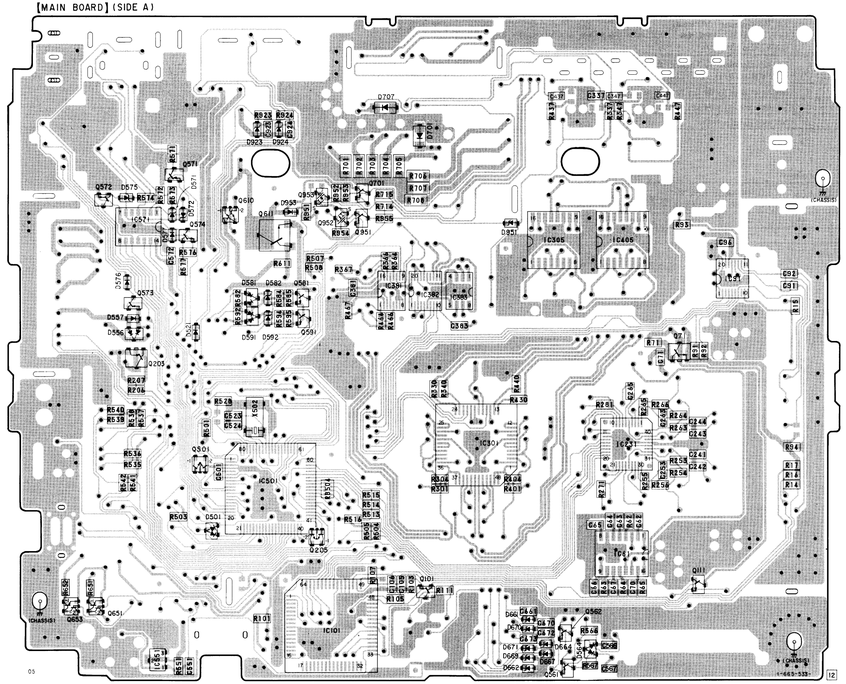
Ref. No.	Location	Ref. No.	Location
D11	E-13	IC231	G-8
D71	F-14	IC301	F-7
D202	F-21	IC305	D-8
D203	F-21	IC381	E-6
D501	G-3	IC382	E-6
D521	E-3	IC383	E-6
D554	I-21	IC405	D-8
D556	E-2	IC501	G-4
D557	E-2	IC551	I-3
D561	B-21	IC552	I-20
D562	C-21	IC571	D-2
D563	C-22	IC601	D-21
D564	I-8	IC701	B-17
D571	D-3		
D572	D-3	Q31	H-13
D573	C-21	Q35	H-15
D574	C-21	Q41	H-13
D575	E-2	Q71	E-9
D576	D-2	Q72	C-13
D577	D-3	Q73	C-13
D581	E-4	Q101	H-6
D582	E-4	Q111	H-9
D591	E-4	Q201	G-21
D592	E-4	Q202	G-22
D610	D-18	Q203	E-2
D651	H-21	Q205	H-5
D652	H-21	Q331	B-15
D661	I-7	Q341	B-14
D662	I-7	Q371	D-16
D664	I-8	Q431	B-15
D667	I-8	Q441	B-14
D669	I-7	Q471	E-16
D670	I-7	Q501	G-3
D671	I-7	Q556	H-21
D672	I-15	Q561	I-8
D673	I-15	Q562	I-8
D701	C-6	Q571	C-3
D702	A-18	Q572	C-2
D703	C-17	Q573	E-2
D704	A-17	Q574	D-3
D705	C-16	Q581	E-4
D706	D-16	Q591	E-4
D707	B-5	Q610	D-4
D708	C-17	Q611	D-4
D901	C-20	Q651	H-2
D923	C-4	Q652	G-21
D924	C-4	Q653	H-2
D951	D-7	Q654	G-21
D953	D-4	Q656	H-20
		Q657	H-20
IC61	H-8	Q701	C-5
IC91	D-10	Q951	D-5
IC101	I-5	Q952	D-5
IC201	G-20	Q953	C-5

Note on Printed Wiring Board:
- ⟷ : parts extracted from the component side.
- ⟷ : parts extracted from the conductor side.
- ● : Through hole.
- △ : internal component.
- ▒▒▒ : Pattern from the side which enables seeing.

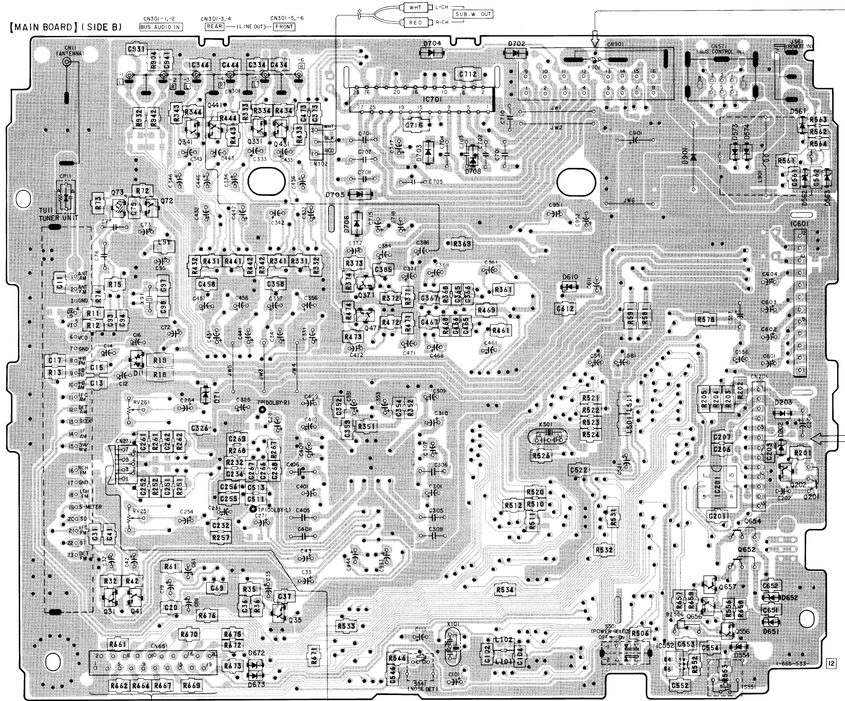
(The other layers' patterns are not indicated.)

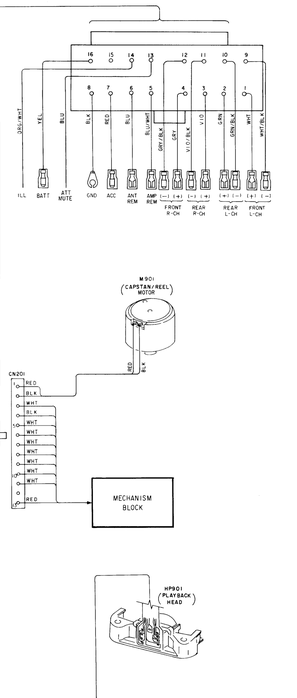
Caution:
Pattern face side: (Side B) Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Side A) Parts on the parts face side seen from the parts face are indicated.

【MAIN BOARD】(SIDE A)



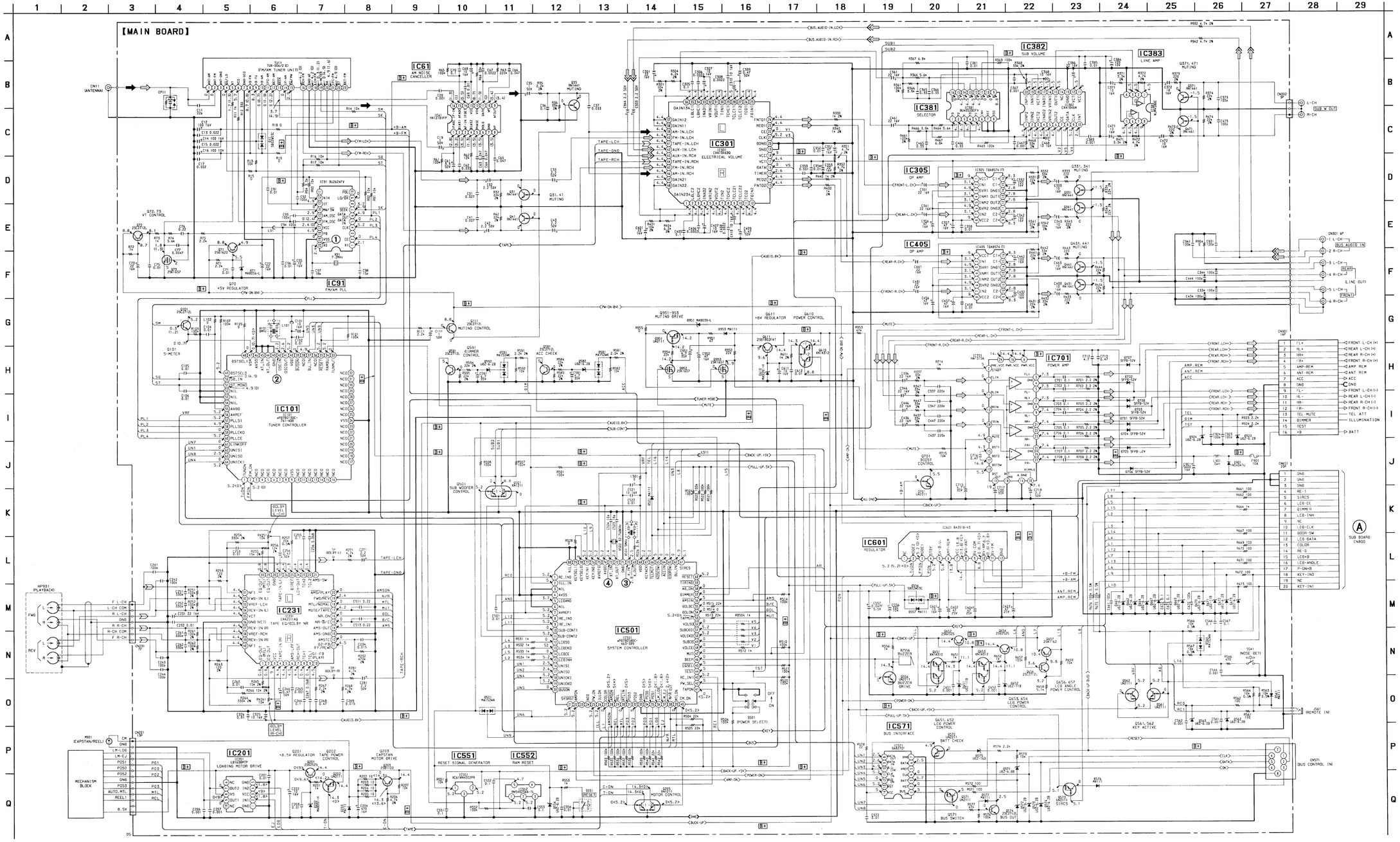
【MAIN BOARD】(SIDE B)





6-3. SCHEMATIC DIAGRAM – MAIN Section –

• See page 37 for IC Block Diagrams, See page 22 for Waveforms.


【MAIN BOARD】
IC91
FM/AM PLL
IC101
TUNER CONTROLLER
IC231
TAPE EQ/DOLBY NR
IC501
SYSTEM CONTROLLER
IC61
AM NOISE CANCELLER
IC301
ELECTRICAL VOLUME
IC381
SELECTOR
IC382
SUB VOLUME
IC383
LINE AMP
IC305
DP AMP
IC405
DP AMP
IC701
POWER AMP
IC601
REGULATOR
IC571
BUS INTERFACE
IC201
LOADING MOTOR DRIVE
IC551
RESET SIGNAL GENERATOR
IC552
RAM RESET
Q591
DIMMER CONTROL
Q611
+8V REGULATOR
Q610
POWER CONTROL
Q701
MODE1 CONTROL
Q571
BUS SWITCH
Q70
+5V REGULATOR
Q72
VT CONTROL
Q101
S-METER
Q591
MUTING CONTROL
Q951-955
MUTING DRIVE
Q201
+8.5V REGULATOR
Q202
TAPE POWER CONTROL
Q203
CAPSTAN MOTOR DRIVE
Q551
MUTING
Q451
MUTING
Q561
MUTING
Q571
MUTING
Q451, 652
LCD POWER CONTROL
Q454, 657
LCD ANGLE CONTROL
Q455, 654
LCD POWER CONTROL
Q456, 657
LCD ANGLE CONTROL
Q457
BATT CHECK
Q458
BUZZER
Q459
BUZZER DRIVE
Q460
BUZZER
Q591
ACC CHECK
Q951
MUTING
Q952
MUTING
Q953
MUTING
Q954
MUTING
Q955
MUTING
Q2541, 562
KEY ACTIVE
Q5541
NOISE DET
CN001
ANTENNA
CN101
TUNER UNIT
CN201
MECHANISM BLOCK
CN301
CN302
CN501
CN502
CN601
CN701
CN801
CN901
CN902
CN951
CN952
CN953
CN954
CN955
CN2501
CN2502
CN2503
CN2504
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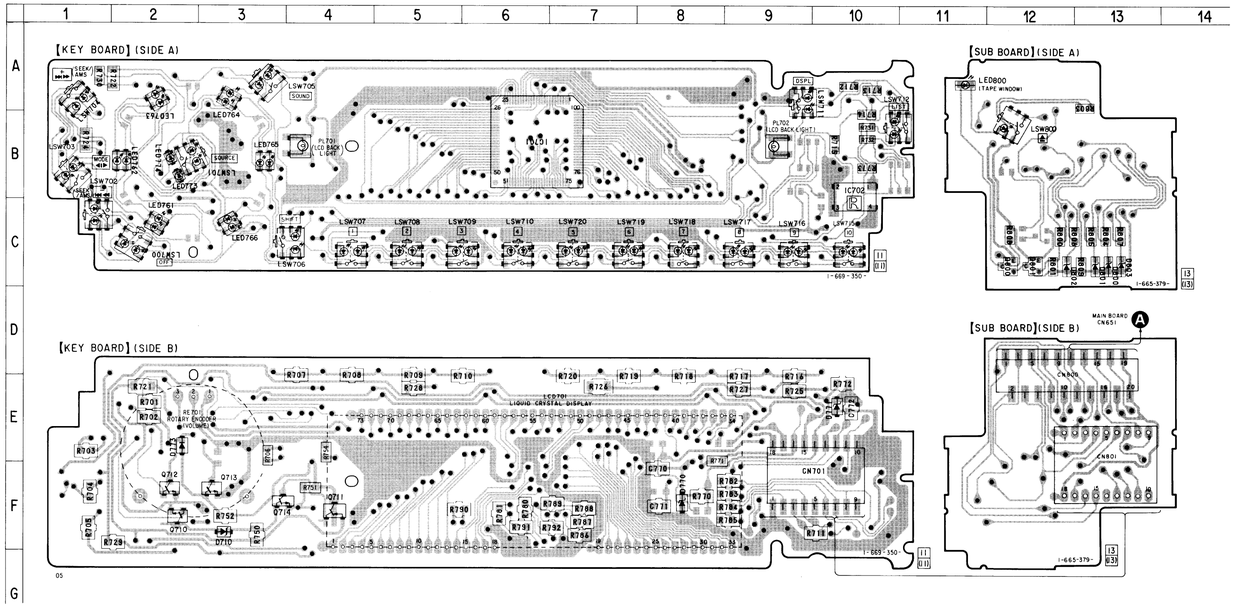
6-4. PRINTED WIRING BOARDS – PANEL Section –



• Semiconductor Location

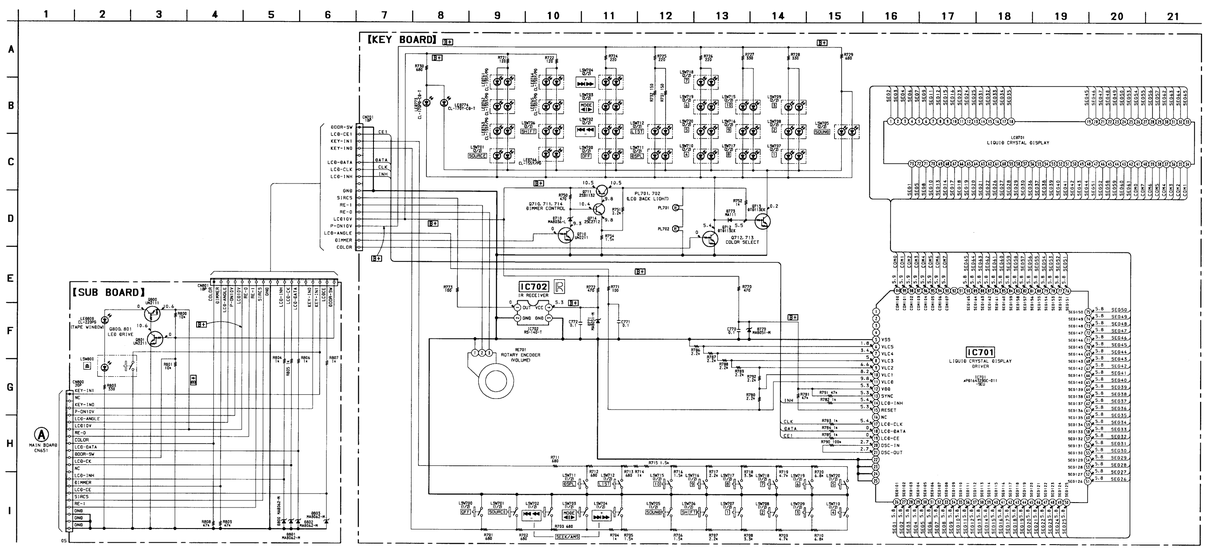
Ref. No.	Location	Ref. No.	Location
D710	F-3	LED764	A-3
D770	F-8	LED765	B-3
D771	E-10	LED766	C-3
D773	E-2	LED773	B-2
D800	C-13	LED774	B-2
D801	C-13	LED800	A-11
D802	C-12		
D803	C-13	Q710	F-2
		Q711	F-4
IC701	B-6	Q712	F-2
IC702	B-10	Q713	F-3
		Q714	F-3
LED761	C-2	Q800	C-12
LED762	B-2	Q801	C-12
LED763	A-2		

Note on Printed Wiring Boards:
- ○——— : parts extracted from the component side.
- ● : Through hole.
- ▒▒▒ : Pattern from the side which enables seeing.

(The other layers' patterns are not indicated.)

Caution:
Pattern face side: (Side B) Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Side A) Parts on the parts face side seen from the parts face are indicated.

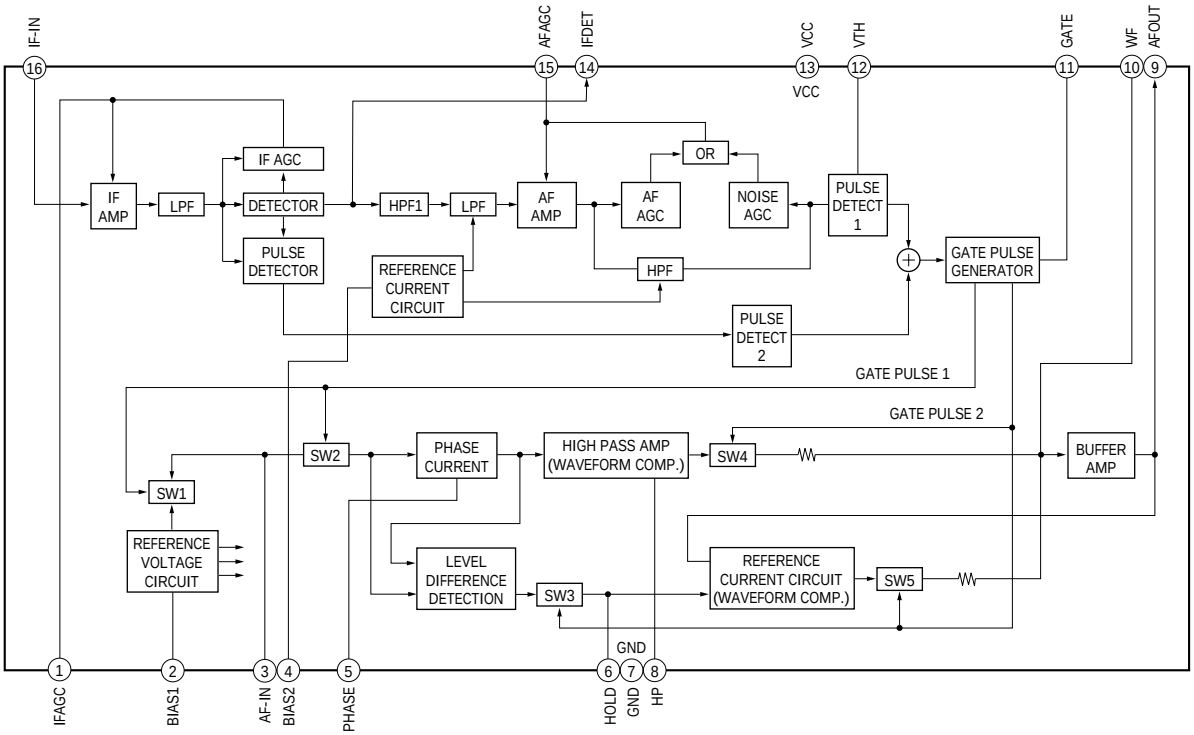
6-5. SCHEMATIC DIAGRAM – PANEL Section –



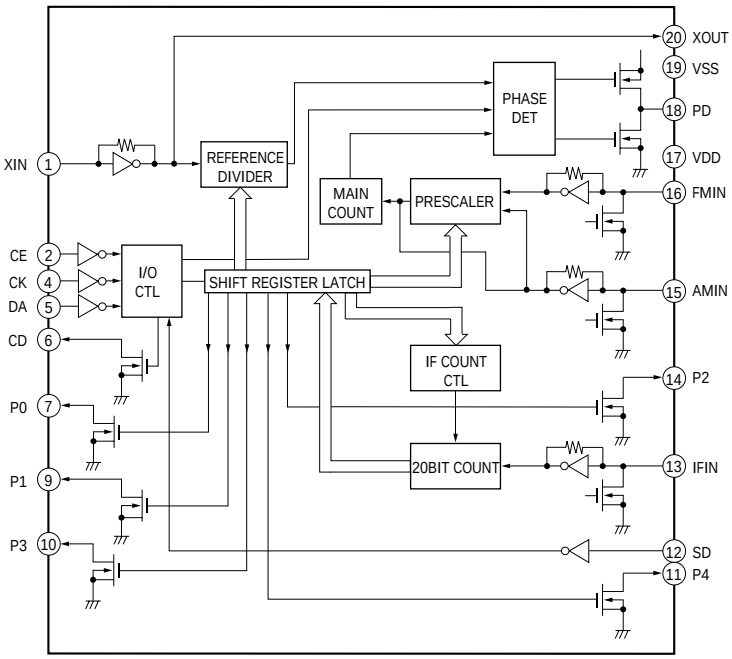
Note on Schematic Diagram:
- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- ▭ : panel designation.
- B+ : B+ Line.
- Power voltage is dc 14.4V and fed with regulated dc power supply from ACC and BATT cords.
- Voltages are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.

• IC Block Diagrams – MAIN BOARD –

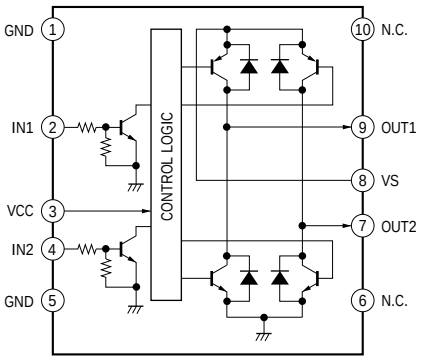
IC61 HA12181FP-EL



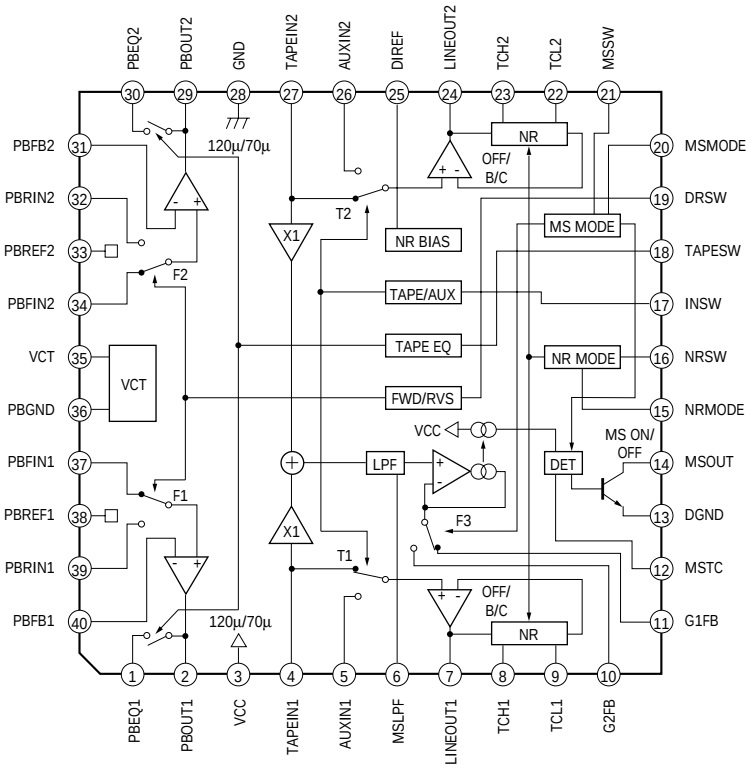
IC91 BU2624FV-E2



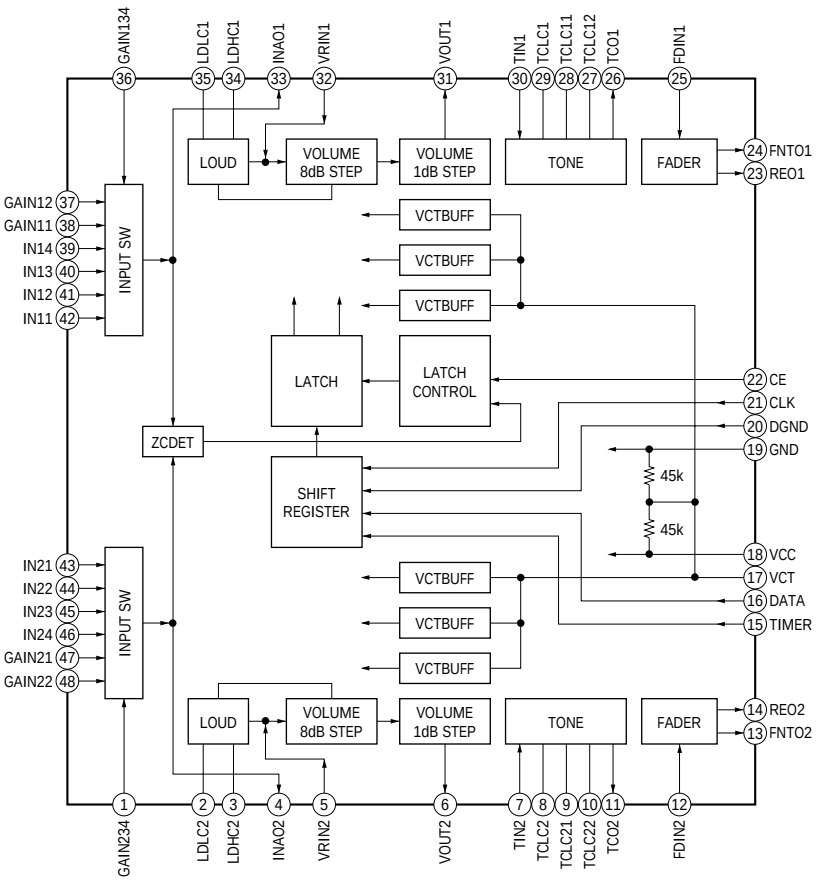
IC201 LB1638M



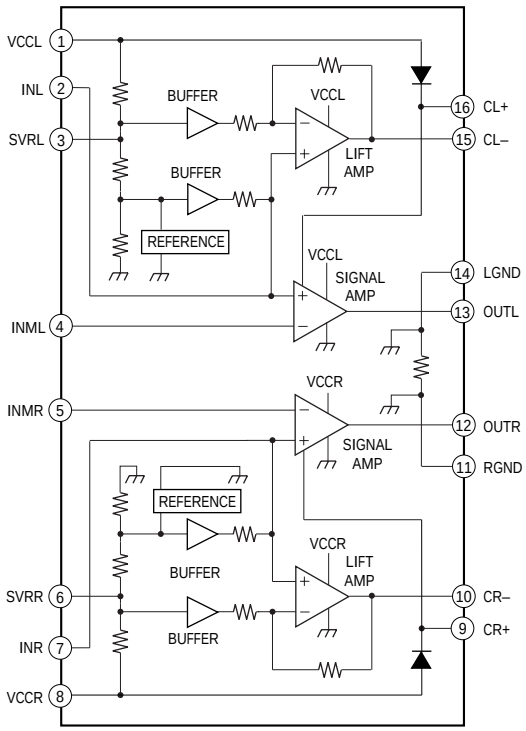
IC231 CXA2511AQ-T4



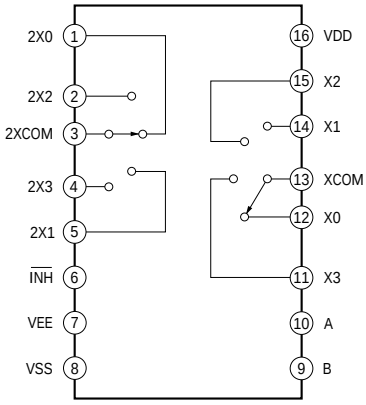
IC301 CXA1946BQ-T6



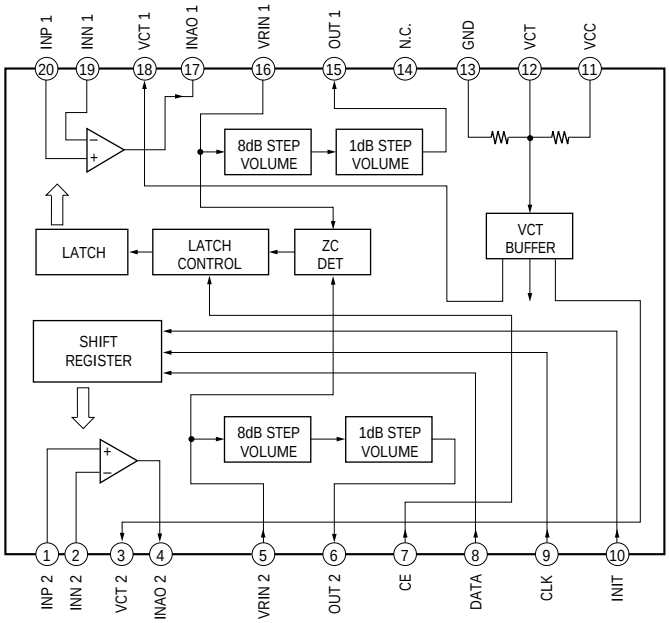
IC305, 405 TDA8574 (T)



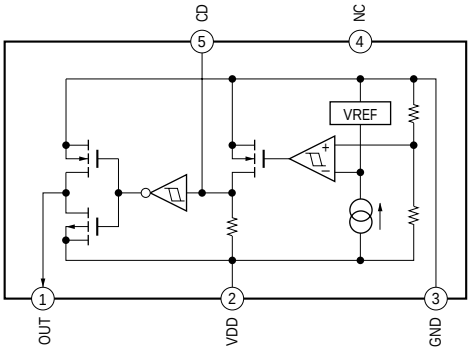
IC381 BU4052BCFV-E2



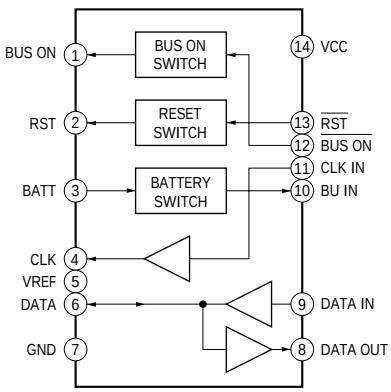
IC382 CXA1846N



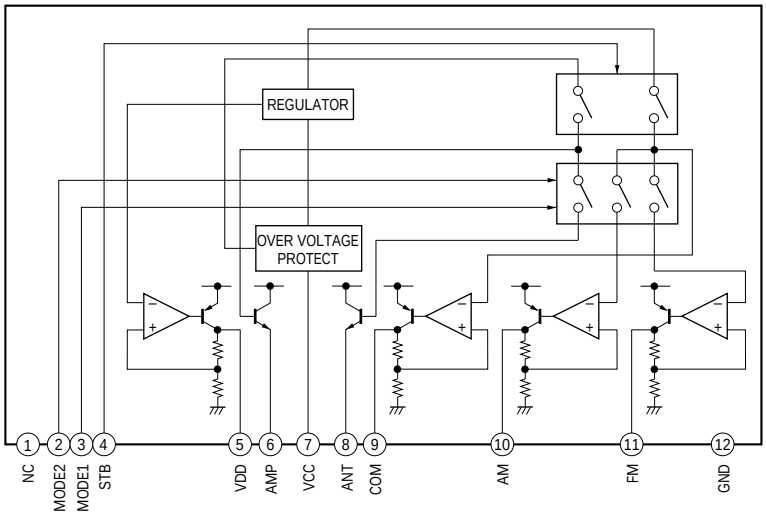
IC552 RN5VD23AA-TL



IC571 BA8270F-E2



IC601 BA3918-V3

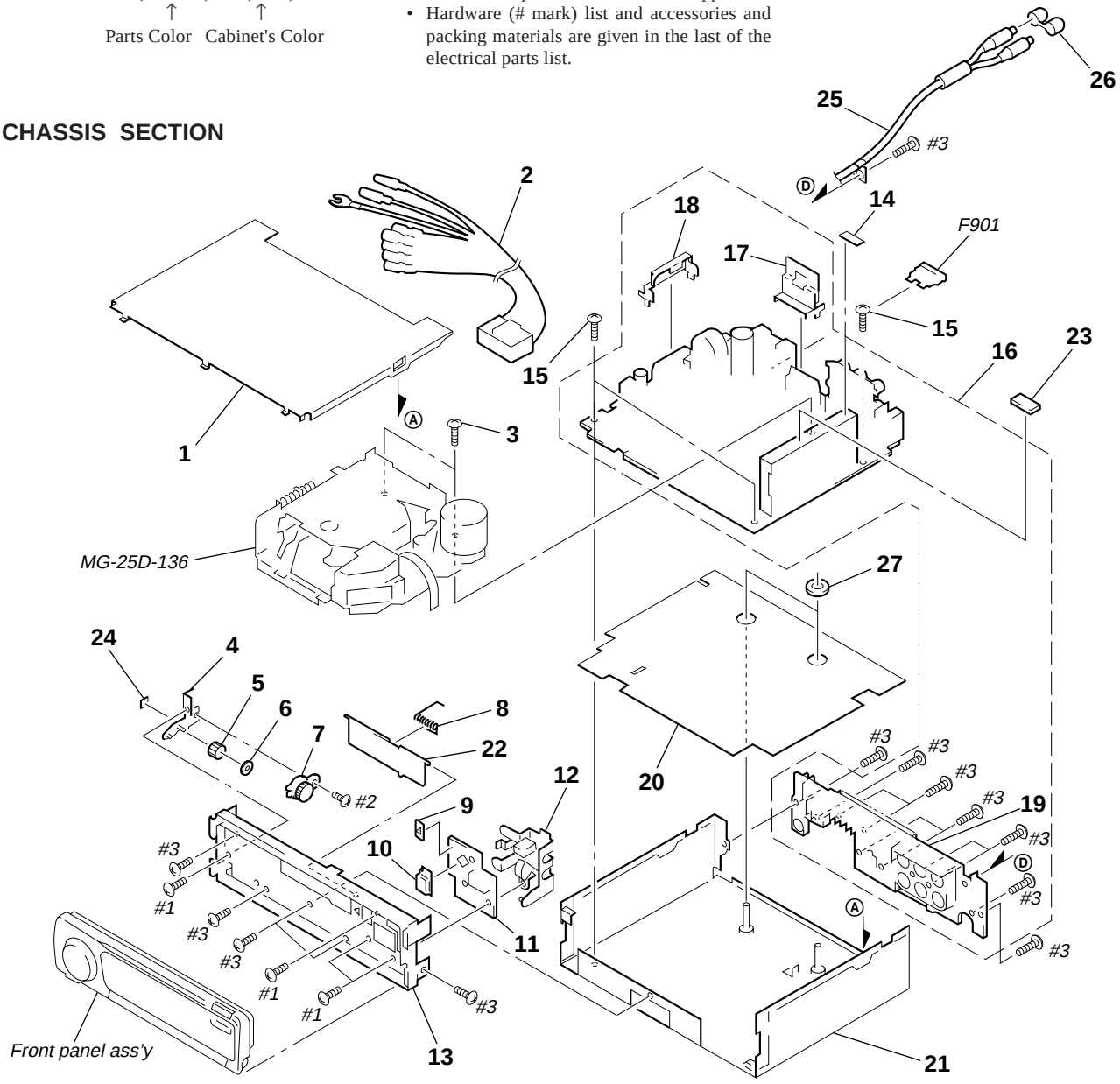


SECTION 7
EXPLODED VIEWS

NOTE:

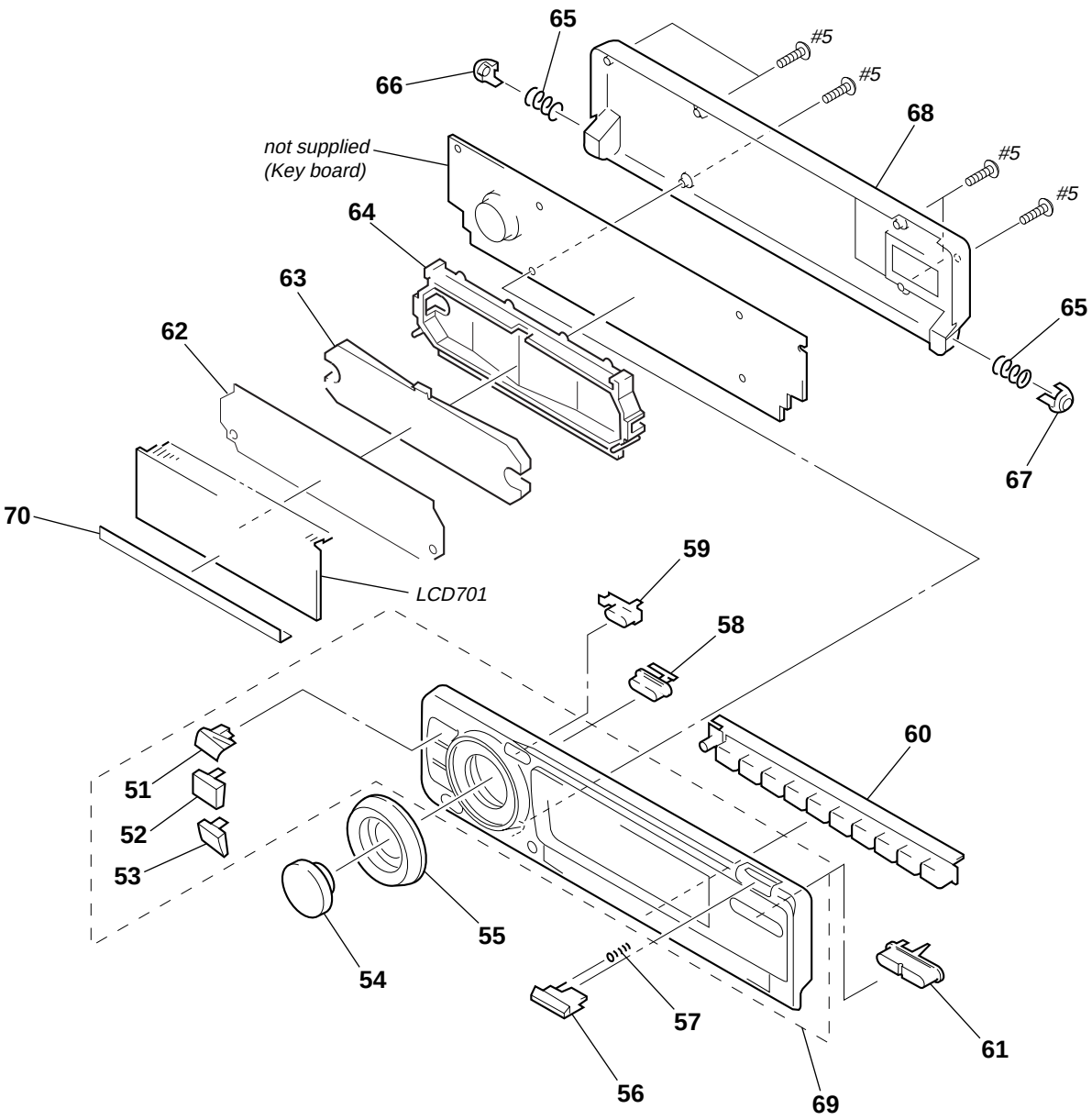
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of the electrical parts list.

(1) CHASSIS SECTION



Ref. No.	Part No.	Description	Remark
* 1	X-3373-362-1	COVER ASSY	
2	1-776-207-11	CORD (WITH CONNECTOR) (POWER)	
3	3-919-171-01	SCREW (2.6X6) (C TIGHT)	
4	X-3373-376-1	BRACKET (GEAR) ASSY	
5	3-011-170-01	GEAR (HOLDER)	
6	3-341-752-11	WASHER, POLYETHYLENE	
7	3-953-235-31	DAMPER, OIL	
8	3-913-076-01	SPRING (C DOOR), TORSION	
9	3-010-993-11	PLATE (C DOOR), LIGHT GUIDE	
10	3-010-996-01	BUTTON (EJECT) (⏏)	
* 11	1-665-379-11	SUB BOARD	
12	X-3373-374-1	LOCK ASSY	
13	X-3375-380-1	PANEL SUB ASSY, SUB	
* 14	3-355-209-01	PLATE (B), GROUND	
15	3-915-923-01	SCREW, GROUND POINT	
* 16	A-3309-978-A	MAIN BOARD, COMPLETE	
* 17	3-011-078-01	BRACKET (POWER IC)	
* 18	3-011-090-01	BRACKET (AMP)	
* 19	3-011-077-11	HEAT SINK	
* 20	3-012-196-01	INSULATOR	
* 21	X-3373-384-1	CHASSIS ASSY	
22	3-922-165-92	DOOR, CASSETTE	
23	3-338-263-01	CUSHION (U)	
24	3-015-291-01	SPACER (GEAR)	
25	1-782-246-21	CORD (WITH CONNECTOR) (SUB W. OUT)	
26	3-339-410-01	COVER (2), PIN JACK	
27	3-016-456-01	SPACER (SHAFT)	
F901	1-532-877-11	FUSE (BLADE TYPE) (AUTO FUSE) (10A)	

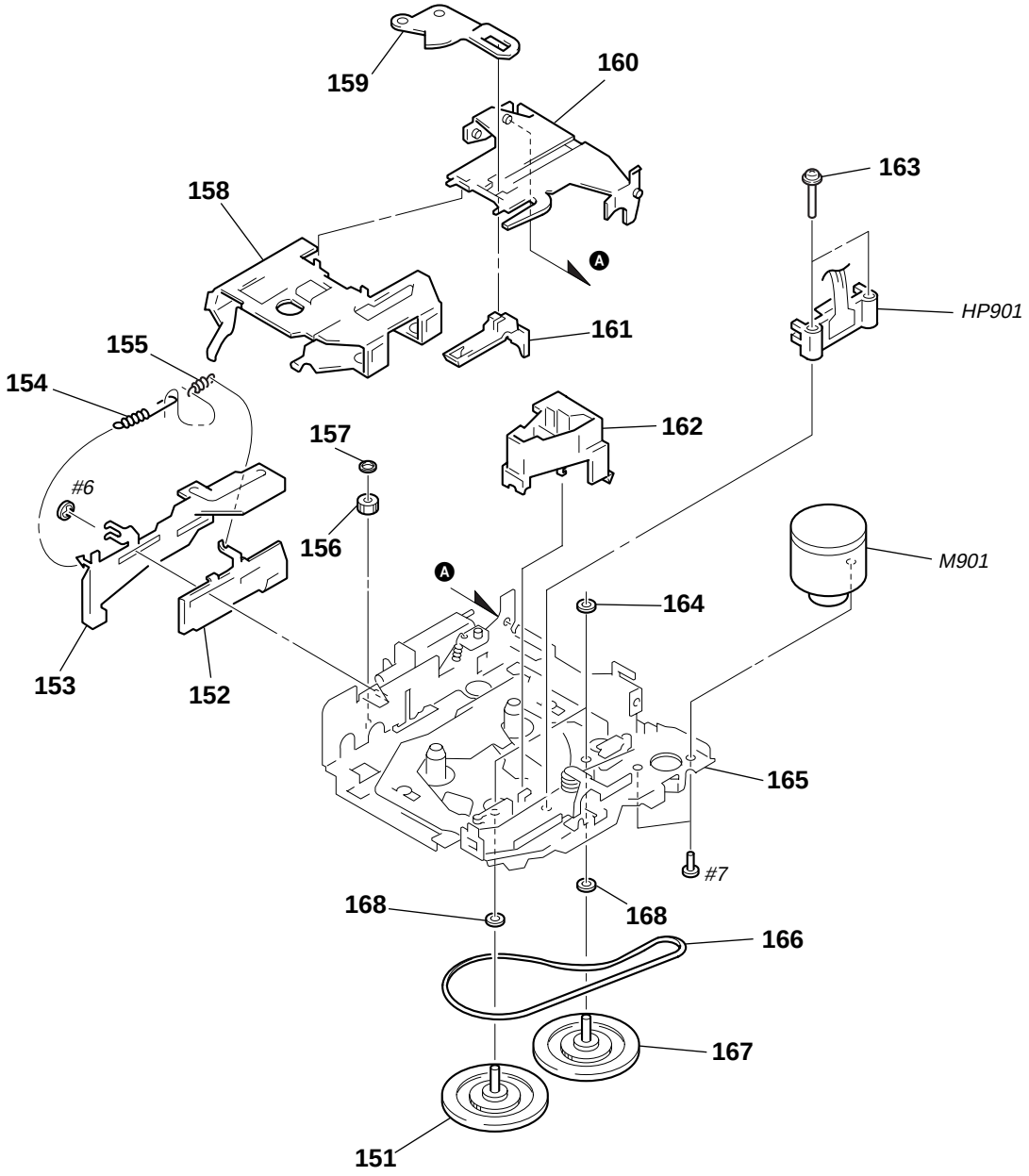
(2) FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark
51	3-010-985-11	BUTTON (+) (+ ▶▶I ▶▶)	
52	3-010-986-11	BUTTON (MODE) (MODE ◀I▶)	
53	3-010-987-11	BUTTON (–) (I◀◀ ◀◀ –)	
54	X-3373-383-2	BUTTON (SOURCE) ASSY	
55	3-010-989-01	KNOB (VOL)	
56	3-010-983-51	BUTTON (OPEN)	
57	3-010-997-01	SPRING (OPEN)	
58	3-010-982-01	BUTTON (SOUND)	
59	3-010-981-01	BUTTON (OFF)	
60	3-010-980-01	BUTTON (10 KEY) (●. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10)	
61	3-011-460-01	BUTTON (LIST) (DSPL/LIST)	

Ref. No.	Part No.	Description	Remark
* 62	3-023-221-01	ILLUMINATOR (LCD)	
* 63	3-023-162-01	PLATE (LCD), LIGHT GUIDE	
* 64	3-023-163-01	HOLDER (LCD)	
65	3-010-998-01	SPRING (BEARING)	
66	3-010-999-01	BEARING (L)	
67	3-011-000-01	BEARING (R)	
68	3-010-977-11	PANEL, FRONT BACK	
69	X-3375-419-1	PANEL SUB ASSY, FRONT	
70	3-015-290-01	SHEET (LCD), ELECTROSTATIC	
LCD701	1-801-679-21	DISPLAY PANEL, LIQUID CRYSTAL	

(3) MECHANISM DECK SECTION (MG-25D-136)



Ref. No.	Part No.	Description	Remark
151	A-3291-667-A	CLUTCH (FR) ASSY	
* 152	3-019-130-01	LEVER (LDG-A)	
* 153	3-019-131-01	LEVER (LDG-B)	
154	3-020-539-01	SPRING (LD-1), TENSION	
155	3-020-540-01	SPRING (LD-2), TENSION	
156	3-020-542-01	GEAR (LOADING FT)	
157	3-341-753-11	WASHER, POLYETHYLENE	
158	3-020-533-01	HOUSING	
* 159	3-020-532-01	ARM (SUCTION)	
160	3-020-534-01	HANGER	

Ref. No.	Part No.	Description	Remark
161	3-933-346-01	CATCHER	
162	3-933-344-01	GUIDE (C)	
163	3-014-798-01	SCREW (HEAD), SPECIAL	
164	3-364-151-01	WASHER	
165	X-3375-625-1	CHASSIS (SV) ASSY (D)	
166	3-017-302-01	BELT (25)	
167	3-936-853-01	FLYWHEEL (F)	
168	3-701-437-21	WASHER	
HP901	1-500-157-21	HEAD, MAGNETIC (PLAYBACK)	
M901	A-3291-665-A	MOTOR ASSY, MAIN (CAPSTAN/REEL)	

KEY

SECTION 8
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service.
  Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA. . : µA. . uPA. . : µPA. .
  uPB. . : µPB. . uPC. . : µPC. .
  uPD. . : µPD. .
- CAPACITORS
  uF: µF
- COILS
  uH: µH

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description	Remark
		KEY BOARD	
		**********	
*	3-023-162-01	PLATE (LCD), LIGHT GUIDE	
*	3-023-163-01	HOLDER (LCD)	
*	3-023-221-01	ILLUMINATOR (LCD)	
		< CAPACITOR >	
C770	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C771	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C772	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
		< CONNECTOR >	
CN701	1-778-183-11	PLUG, CONNECTOR 18P	
		< DIODE >	
D710	8-719-421-36	DIODE MA8036-L	
D770	8-719-420-90	DIODE MA8051-M	
D771	8-719-420-90	DIODE MA8051-M	
D773	8-719-404-49	DIODE MA111	
		< IC >	
IC701	8-759-474-47	IC uPD16432BGC-011-9EU	
IC702	8-749-012-17	IC RS-140-T	
		< LIQUID CRYSTAL DISPLAY >	
LCD701	1-801-679-21	DISPLAY PANEL, LIQUID CRYSTAL	
		< DIODE (LED) >	
LED761	8-719-987-45	DIODE CL-155Y/PG-CD	
LED762	8-719-987-45	DIODE CL-155Y/PG-CD	
LED763	8-719-987-45	DIODE CL-155Y/PG-CD	
LED764	8-719-987-45	DIODE CL-155Y/PG-CD	
LED765	8-719-987-45	DIODE CL-155Y/PG-CD	
LED766	8-719-987-45	DIODE CL-155Y/PG-CD	
LED773	8-719-033-14	DIODE CL-170PG-CD-T	
LED774	8-719-033-13	DIODE CL-170Y-CD-T	
		< SWITCH >	
LSW700	1-762-620-11	SWITCH, KEY BOARD (WITH LED) (OFF)	
LSW701	1-762-620-11	SWITCH, KEY BOARD (WITH LED) (SOURCE)	
LSW702	1-762-620-11	SWITCH, KEY BOARD (WITH LED)	(I◀◀ ◀◀ –)
LSW703	1-762-620-11	SWITCH, KEY BOARD (WITH LED)	(MODE ◀II▶)
LSW704	1-762-620-11	SWITCH, KEY BOARD (WITH LED)	(+ ▶▶I ▶▶)
LSW705	1-762-620-11	SWITCH, KEY BOARD (WITH LED) (SOUND)	
LSW706	1-762-620-11	SWITCH, KEY BOARD (WITH LED) (SHIFT)	
LSW707	1-762-620-11	SWITCH, KEY BOARD (WITH LED) (1)	
LSW708	1-762-620-11	SWITCH, KEY BOARD (WITH LED) (2)	
LSW709	1-762-620-11	SWITCH, KEY BOARD (WITH LED) (3)	
LSW710	1-762-620-11	SWITCH, KEY BOARD (WITH LED) (4)	
LSW711	1-762-620-11	SWITCH, KEY BOARD (WITH LED) (DSPL)	
LSW712	1-762-620-11	SWITCH, KEY BOARD (WITH LED) (LIST)	
LSW715	1-762-620-11	SWITCH, KEY BOARD (WITH LED) (10)	
LSW716	1-762-620-11	SWITCH, KEY BOARD (WITH LED) (9)	
LSW717	1-762-620-11	SWITCH, KEY BOARD (WITH LED) (8)	
LSW718	1-762-620-11	SWITCH, KEY BOARD (WITH LED) (7)	
LSW719	1-762-620-11	SWITCH, KEY BOARD (WITH LED) (6)	
LSW720	1-762-620-11	SWITCH, KEY BOARD (WITH LED) (5)	
		< PILOT LAMP >	
PL701	1-517-630-31	LAMP, PILOT (LCD BACK LIGHT)	
PL702	1-517-630-31	LAMP, PILOT (LCD BACK LIGHT)	
		< TRANSISTOR >	
Q710	8-729-421-22	TRANSISTOR UN2211	
Q711	8-729-106-60	TRANSISTOR 2SB1115A	
Q712	8-729-904-66	TRANSISTOR DTD113EK	
Q713	8-729-904-66	TRANSISTOR DTD113EK	
Q714	8-729-230-49	TRANSISTOR 2SC2712-YG	
		< RESISTOR >	
R701	1-216-045-00	METAL CHIP 680 5% 1/10W	
R702	1-216-045-00	METAL CHIP 680 5% 1/10W	
R703	1-216-045-00	METAL CHIP 680 5% 1/10W	
R704	1-216-049-11	RES, CHIP 1K 5% 1/10W	
R705	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R706	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R707	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R708	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R709	1-216-065-00	METAL CHIP 4.7K 5% 1/10W	
R710	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	

Ref. No.	Part No.	Description			Remark
R711	1-216-045-00	METAL CHIP	680	5%	1/10W
R712	1-216-045-00	METAL CHIP	680	5%	1/10W
R713	1-216-045-00	METAL CHIP	680	5%	1/10W
R714	1-216-049-11	RES, CHIP	1K	5%	1/10W
R715	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R716	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R717	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R718	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R719	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R720	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R721	1-216-176-11	RES, CHIP	120	5%	1/8W
R722	1-216-176-11	RES, CHIP	120	5%	1/8W
R724	1-216-182-00	RES, CHIP	220	5%	1/8W
R725	1-216-033-00	METAL CHIP	220	5%	1/10W
R726	1-216-182-00	RES, CHIP	220	5%	1/8W
R727	1-216-037-00	METAL CHIP	330	5%	1/10W
R728	1-216-037-00	METAL CHIP	330	5%	1/10W
R729	1-216-045-00	METAL CHIP	680	5%	1/10W
R730	1-216-045-00	METAL CHIP	680	5%	1/10W
R731	1-216-029-00	METAL CHIP	150	5%	1/10W
R732	1-216-029-00	METAL CHIP	150	5%	1/10W
R750	1-216-041-00	METAL CHIP	470	5%	1/10W
R751	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R752	1-216-049-11	RES, CHIP	1K	5%	1/10W
R754	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R770	1-216-041-00	METAL CHIP	470	5%	1/10W
R771	1-216-025-00	RES,CHIP	100	5%	1/10W
R772	1-216-041-00	METAL CHIP	470	5%	1/10W
R773	1-216-025-00	RES, CHIP	100	5%	1/10W
R780	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R781	1-216-089-00	RES, CHIP	47K	5%	1/10W
R782	1-216-049-11	RES, CHIP	1K	5%	1/10W
R783	1-216-049-11	RES, CHIP	1K	5%	1/10W
R784	1-216-049-11	RES, CHIP	1K	5%	1/10W
R785	1-216-049-11	RES, CHIP	1K	5%	1/10W
R786	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R787	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R788	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R789	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R790	1-216-097-00	RES, CHIP	100K	5%	1/10W
R791	1-216-089-00	RES, CHIP	47K	5%	1/10W
R792	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
		< ROTARY ENCODER >			
RE701	1-475-014-11	ENCODER, ROTARY (VOLUME)			

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*	A-3309-978-A	MAIN BOARD, COMPLETE
		**********
*	3-011-077-01	HEAT SINK
*	3-011-078-01	BRACKET (POWER IC)
*	3-011-090-01	BRACKET (AMP)
*	3-939-619-01	SHEET (SPONGE)
	7-685-793-09	SCREW +PTT 2.6X8 (S)
		< BUZZER >
BZ556	1-504-920-11	BUZZER

Ref. No.	Part No.	Description			Remark
		< CAPACITOR >			
C11	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C12	1-126-933-11	ELECT	100uF	20%	16V
C13	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C14	1-126-933-11	ELECT	100uF	20%	16V
C15	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C16	1-124-584-00	ELECT	100uF	20%	10V
C17	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C19	1-126-301-11	ELECT	1uF	20%	50V
C20	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C31	1-163-986-00	CERAMIC CHIP	0.027uF	10%	25V
C32	1-124-257-00	ELECT	2.2uF	20%	50V
C33	1-124-257-00	ELECT	2.2uF	20%	50V
C35	1-126-301-11	ELECT	1uF	20%	50V
C36	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C37	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C41	1-163-986-00	CERAMIC CHIP	0.027uF	10%	25V
C42	1-124-257-00	ELECT	2.2uF	20%	50V
C43	1-124-257-00	ELECT	2.2uF	20%	50V
C61	1-126-162-11	ELECT	3.3uF	20%	50V
C62	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C63	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C64	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C65	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C66	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C67	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C68	1-126-157-11	ELECT	10uF	20%	16V
C69	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C70	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C71	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C72	1-124-234-00	ELECT	22uF	20%	16V
C73	1-124-234-00	ELECT	22uF	20%	16V
C75	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C76	1-136-169-00	FILM	0.22uF	5%	50V
C77	1-137-368-11	FILM	0.0047uF	5%	50V
C91	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C92	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C93	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C94	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C95	1-126-157-11	ELECT	10uF	20%	16V
C96	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C97	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C98	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C101	1-126-157-11	ELECT	10uF	20%	16V
C102	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C104	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C105	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C106	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C111	1-126-301-11	ELECT	1uF	20%	50V
C201	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C202	1-126-157-11	ELECT	10uF	20%	16V
C203	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C204	1-128-528-11	ELECT	470uF	20%	16V
C206	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C207	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C231	1-124-234-00	ELECT	22uF	20%	16V
C232	1-164-232-11	CERAMIC CHIP	0.01uF		50V

MAIN

Ref. No.	Part No.	Description			Remark
C234	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V
C241	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C242	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C243	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C244	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C251	1-163-263-11	CERAMIC CHIP	330PF	5%	50V
C252	1-163-263-11	CERAMIC CHIP	330PF	5%	50V
C253	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C254	1-126-159-11	ELECT	0.47uF	20%	50V
C255	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C256	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C261	1-163-263-11	CERAMIC CHIP	330PF	5%	50V
C262	1-163-263-11	CERAMIC CHIP	330PF	5%	50V
C263	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C264	1-126-159-11	ELECT	0.47uF	20%	50V
C265	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C266	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C267	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C268	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C269	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V
C271	1-124-257-00	ELECT	2.2uF	20%	50V
C281	1-124-257-00	ELECT	2.2uF	20%	50V
C301	1-124-234-00	ELECT	22uF	20%	16V
C305	1-136-165-00	FILM	0.1uF	5%	50V
C306	1-137-366-11	FILM	0.0022uF	5%	50V
C307	1-126-157-11	ELECT	10uF	20%	16V
C308	1-137-366-11	FILM	0.0022uF	5%	50V
C309	1-126-159-11	ELECT	0.47uF	20%	50V
C310	1-126-157-11	ELECT	10uF	20%	16V
C325	1-126-157-11	ELECT	10uF	20%	16V
C326	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C331	1-124-234-00	ELECT	22uF	20%	16V
C332	1-124-455-00	ELECT	100uF	20%	16V
C333	1-126-791-11	ELECT	10uF	20%	16V
C334	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C336	1-126-514-11	ELECT	22uF	20%	16V
C337	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C341	1-124-234-00	ELECT	22uF	20%	16V
C342	1-124-455-00	ELECT	100uF	20%	16V
C343	1-126-791-11	ELECT	10uF	20%	16V
C344	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C346	1-126-514-11	ELECT	22uF	20%	16V
C347	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C351	1-124-589-11	ELECT	47uF	20%	16V
C352	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C353	1-124-234-00	ELECT	22uF	20%	16V
C354	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C356	1-124-589-11	ELECT	47uF	20%	16V
C357	1-124-589-11	ELECT	47uF	20%	16V
C358	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C359	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C361	1-124-234-00	ELECT	22uF	20%	16V
C365	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
C366	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
C367	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C368	1-126-157-11	ELECT	10uF	20%	16V
C371	1-126-157-11	ELECT	10uF	20%	16V
C372	1-126-157-11	ELECT	10uF	20%	16V

Ref. No.	Part No.	Description			Remark
C373	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C381	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C383	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C384	1-124-584-00	ELECT	100uF	20%	10V
C385	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C386	1-124-234-00	ELECT	22uF	20%	16V
C401	1-124-234-00	ELECT	22uF	20%	16V
C405	1-136-165-00	FILM	0.1uF	5%	50V
C406	1-137-366-11	FILM	0.0022uF	5%	50V
C407	1-126-157-11	ELECT	10uF	20%	16V
C408	1-137-366-11	FILM	0.0022uF	5%	50V
C409	1-126-159-11	ELECT	0.47uF	20%	50V
C410	1-126-157-11	ELECT	10uF	20%	16V
C431	1-124-234-00	ELECT	22uF	20%	16V
C432	1-126-933-11	ELECT	100uF	20%	16V
C433	1-126-791-11	ELECT	10uF	20%	16V
C434	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C436	1-126-514-11	ELECT	22uF	20%	16V
C437	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C441	1-124-234-00	ELECT	22uF	20%	16V
C442	1-124-455-00	ELECT	100uF	20%	16V
C443	1-126-791-11	ELECT	10uF	20%	16V
C444	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C446	1-126-514-11	ELECT	22uF	20%	16V
C447	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C456	1-124-589-11	ELECT	47uF	20%	16V
C457	1-124-589-11	ELECT	47uF	20%	16V
C458	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C461	1-124-234-00	ELECT	22uF	20%	16V
C465	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
C466	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
C467	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C468	1-126-157-11	ELECT	10uF	20%	16V
C471	1-126-157-11	ELECT	10uF	20%	16V
C472	1-126-157-11	ELECT	10uF	20%	16V
C473	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C501	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C511	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C513	1-164-222-11	CERAMIC CHIP	0.22uF		25V
C521	1-126-157-11	ELECT	10uF	20%	16V
C522	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C523	1-163-099-00	CERAMIC CHIP	18PF	5%	50V
C524	1-163-229-11	CERAMIC CHIP	12PF	5%	50V
C546	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C551	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C552	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C553	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C554	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C556	1-126-924-11	ELECT	330uF	20%	10V
C557	1-125-701-11	DOUBLE LAYER	0.047F		5.5V
C561	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C562	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C566	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C567	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C572	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C581	1-126-163-11	ELECT	4.7uF	20%	50V
C591	1-126-163-11	ELECT	4.7uF	20%	50V

Ref. No.	Part No.	Description			Remark
C601	1-126-157-11	ELECT	10uF	20%	16V
C602	1-107-888-11	ELECT	47uF	20%	25V
C603	1-107-888-11	ELECT	47uF	20%	25V
C604	1-107-888-11	ELECT	47uF	20%	25V
C611	1-126-157-11	ELECT	10uF	20%	16V
C612	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C651	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C652	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C661	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C670	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C672	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C673	1-163-038-00	CERAMIC CHIP	0.1uF		25V
C701	1-136-165-00	FILM	0.1uF	5%	50V
C702	1-136-165-00	FILM	0.1uF	5%	50V
C703	1-136-165-00	FILM	0.1uF	5%	50V
C704	1-136-165-00	FILM	0.1uF	5%	50V
C705	1-136-165-00	FILM	0.1uF	5%	50V
C706	1-136-165-00	FILM	0.1uF	5%	50V
C707	1-136-165-00	FILM	0.1uF	5%	50V
C708	1-136-165-00	FILM	0.1uF	5%	50V
C710	1-136-173-00	FILM	0.47uF	5%	50V
C712	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C715	1-115-866-11	ELECT	4.7uF	20%	35V
C716	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C717	1-126-804-11	ELECT	100uF	20%	35V
C718	1-115-872-11	ELECT	2.2uF	20%	50V
C901	1-111-233-11	ELECT	5600uF	20%	16V
C923	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C924	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C931	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C933	1-124-257-00	ELECT	2.2uF	20%	50V
C941	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C944	1-124-257-00	ELECT	2.2uF	20%	50V
C951	1-126-163-11	ELECT	4.7uF	20%	50V
C952	1-124-589-11	ELECT	47uF	20%	16V
		< CONNECTOR >			
CN11	1-764-808-14	JACK (ANT) (ANTENNA)			
* CN201	1-506-995-11	PIN, CONNECTOR (PC BOARD) 13P			
CN231	1-766-260-11	CONNECTOR, FFC/FPC (ZIF) 7P			
CN301	1-774-700-11	JACK, PIN 6P (BUS AUDIO IN/LINE OUT)			
* CN302	1-750-241-21	PIN, CONNECTOR (PC BOARD) 3P			(SUB W OUT)
CN571	1-580-907-31	PLUG, CONNECTOR (BUS CONTROL IN)			
CN651	1-770-411-11	CONNECTOR, BOARD TO BOARD 20P			
CN901	1-774-701-11	PIN, CONNECTOR 16P			
		< CONPOSITION CIRCUIT BLOCK >			
CP11	1-519-504-11	GAP, DISCHARGE			
		< DIODE >			
D11	8-719-991-65	DIODE SB02W03C			
D71	8-719-422-49	DIODE MA8056-L			
D202	8-719-422-97	DIODE MA8091-M			
D203	8-719-404-49	DIODE MA111			
D501	8-719-400-20	DIODE MA152WA			
D521	8-719-404-49	DIODE MA111			

Ref. No.	Part No.	Description	Remark
D554	8-719-105-99	DIODE RD6.2M-B1	
D556	8-719-991-65	DIODE SB02W03C	
D557	8-719-404-49	DIODE MA111	
D561	8-719-404-49	DIODE MA111	
D562	8-719-105-99	DIODE RD6.2M-B1	
D563	8-719-105-99	DIODE RD6.2M-B1	
D564	8-719-400-20	DIODE MA152WA	
D571	8-719-056-83	DIODE UDZ-TE-17-6.8B	
D572	8-719-105-99	DIODE RD6.2M-B1	
D573	8-719-105-99	DIODE RD6.2M-B1	
D574	8-719-105-99	DIODE RD6.2M-B1	
D575	8-719-978-69	DIODE DTZ-TT11-16B	
D576	8-719-404-49	DIODE MA111	
D577	8-719-404-49	DIODE MA111	
D581	8-719-801-78	DIODE 1SS184	
D582	8-719-105-99	DIODE RD6.2M-B1	
D591	8-719-801-78	DIODE 1SS184	
D592	8-719-105-99	DIODE RD6.2M-B1	
D610	8-719-422-97	DIODE MA8091-M	
D651	8-719-056-88	DIODE UDZ-TE-17-11B	
D652	8-719-056-88	DIODE UDZ-TE-17-11B	
D661	8-719-105-99	DIODE RD6.2M-B1	
D662	8-719-105-99	DIODE RD6.2M-B1	
D664	8-719-105-99	DIODE RD6.2M-B1	
D667	8-719-105-99	DIODE RD6.2M-B1	
D669	8-719-105-99	DIODE RD6.2M-B1	
D670	8-719-105-99	DIODE RD6.2M-B1	
D671	8-719-056-88	DIODE UDZ-TE-17-11B	
D672	8-719-105-99	DIODE RD6.2M-B1	
D673	8-719-105-99	DIODE RD6.2M-B1	
D701	8-719-313-73	DIODE SFPB-52	
D702	8-719-313-73	DIODE SFPB-52	
D703	8-719-313-73	DIODE SFPB-52	
D704	8-719-313-73	DIODE SFPB-52	
D705	8-719-313-73	DIODE SFPB-52	
D706	8-719-313-73	DIODE SFPB-52	
D707	8-719-313-73	DIODE SFPB-52	
D708	8-719-313-73	DIODE SFPB-52	
D901	8-719-049-38	DIODE 1N5404TU	
D923	8-719-105-99	DIODE RD6.2M-B1	
D924	8-719-105-99	DIODE RD6.2M-B1	
D951	8-719-422-16	DIODE MA8039-L-TX	
D953	8-719-404-49	DIODE MA111	
		< IC >	
IC61	8-759-367-11	IC HA12181FP-EL	
IC91	8-759-448-85	IC BU2624FV-E2	
IC101	8-759-460-54	IC uPD78013GC-761-AB8	
IC201	8-759-823-87	IC LB1638M	
IC231	8-752-079-80	IC CXA2511AQ-T4	
IC301	8-752-078-67	IC CXA1946BQ-T6	
IC305	8-759-444-50	IC TDA8574(T)	
IC381	8-759-387-26	IC BU4052BCFV-E2	
IC382	8-752-067-30	IC CXA1846N	
IC383	8-759-711-82	IC NJM4580E	
IC405	8-759-444-50	IC TDA8574(T)	
IC501	8-759-460-53	IC uPD78058GC-463-3B9	
IC551	8-759-363-81	IC XC61AN4002PR	

MAIN

Ref. No.	Part No.	Description	Remark
IC552	8-759-344-91	IC RN5VD23AA-TL	
IC571	8-759-449-89	IC BA8270F-E2	
IC601	8-759-347-50	IC BA3918-V3	
IC701	8-759-448-61	IC HA13156	
		< JACK >	
J561	1-566-822-41	JACK (REMOTE IN)	
		< COIL >	
L91	1-414-233-21	INDUCTOR CHIP 0uH	
L101	1-414-233-21	INDUCTOR CHIP 0uH	
L102	1-216-295-00	SHORT 0	
L501	1-216-295-00	SHORT 0	
L511	1-414-233-21	INDUCTOR CHIP 0uH	
L901	1-411-669-12	INDUCTOR 0uH	
		< TRANSISTOR >	
Q31	8-729-021-95	TRANSISTOR RN1441-A (TE85L)	
Q35	8-729-021-95	TRANSISTOR RN1441-A (TE85L)	
Q41	8-729-021-95	TRANSISTOR RN1441-A (TE85L)	
Q71	8-729-808-02	TRANSISTOR 2SD1622-T-TD	
Q72	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q73	8-729-021-94	TRANSISTOR 2SK1657-T1B	
Q101	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q111	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q201	8-729-026-68	TRANSISTOR 2SD2525 (TP)	
Q202	8-729-424-08	TRANSISTOR UN2111	
Q203	8-729-106-60	TRANSISTOR 2SB1115A	
Q205	8-729-429-92	TRANSISTOR XN1211	
Q331	8-729-021-95	TRANSISTOR RN1441-A (TE85L)	
Q341	8-729-021-95	TRANSISTOR RN1441-A (TE85L)	
Q371	8-729-021-95	TRANSISTOR RN1441-A (TE85L)	
Q431	8-729-021-95	TRANSISTOR RN1441-A (TE85L)	
Q441	8-729-021-95	TRANSISTOR RN1441-A (TE85L)	
Q471	8-729-021-95	TRANSISTOR RN1441-A (TE85L)	
Q501	8-729-429-92	TRANSISTOR XN1211	
Q556	8-729-421-22	TRANSISTOR UN2211	
Q561	8-729-424-08	TRANSISTOR UN2111	
Q562	8-729-424-08	TRANSISTOR UN2111	
Q571	8-729-424-08	TRANSISTOR UN2111	
Q572	8-729-421-22	TRANSISTOR UN2211	
Q573	8-729-424-08	TRANSISTOR UN2111	
Q574	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q581	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q591	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q610	8-729-020-67	TRANSISTOR XN1A312-TX	
Q611	8-729-807-12	TRANSISTOR 2SD1802-S	
Q651	8-729-020-67	TRANSISTOR XN1A312-TX	
Q652	8-729-026-68	TRANSISTOR 2SD2525 (TP)	
Q653	8-729-020-67	TRANSISTOR XN1A312-TX	
Q654	8-729-026-68	TRANSISTOR 2SD2525 (TP)	
Q656	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q657	8-729-216-22	TRANSISTOR 2SA1162-G	
Q701	8-729-421-22	TRANSISTOR UN2211	
Q951	8-729-424-08	TRANSISTOR UN2111	
Q952	8-729-021-94	TRANSISTOR 2SK1657-T1B	
Q953	8-729-021-94	TRANSISTOR 2SK1657-T1B	

Ref. No.	Part No.	Description			Remark
		< RESISTOR >			
R11	1-216-049-11	RES, CHIP	1K	5%	1/10W
R12	1-216-037-00	METAL CHIP	330	5%	1/10W
R13	1-216-073-00	METAL CHIP	10K	5%	1/10W
R14	1-216-073-00	METAL CHIP	10K	5%	1/10W
R15	1-216-295-00	SHORT	0		
R16	1-216-073-00	METAL CHIP	10K	5%	1/10W
R17	1-216-073-00	METAL CHIP	10K	5%	1/10W
R18	1-216-296-00	SHORT	0		
R19	1-216-296-00	SHORT	0		
R32	1-208-518-61	RES, CHIP	22K	2%	1/10W
R35	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W
R36	1-208-522-61	RES, CHIP	33K	2%	1/10W
R42	1-208-518-61	RES, CHIP	22K	2%	1/10W
R61	1-216-097-00	RES, CHIP	100K	5%	1/10W
R62	1-216-075-00	METAL CHIP	12K	5%	1/10W
R63	1-216-105-00	RES, CHIP	220K	5%	1/10W
R64	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R65	1-216-097-00	RES, CHIP	100K	5%	1/10W
R71	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R72	1-216-049-11	RES, CHIP	1K	5%	1/10W
R73	1-216-049-11	RES, CHIP	1K	5%	1/10W
R74	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R75	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R91	1-216-073-00	METAL CHIP	10K	5%	1/10W
R92	1-216-073-00	METAL CHIP	10K	5%	1/10W
R93	1-216-073-00	METAL CHIP	10K	5%	1/10W
R94	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R101	1-216-097-00	RES, CHIP	100K	5%	1/10W
R103	1-216-097-00	RES, CHIP	100K	5%	1/10W
R105	1-216-295-00	SHORT	0		
R107	1-216-097-00	RES, CHIP	100K	5%	1/10W
R111	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R201	1-216-049-11	RES, CHIP	1K	5%	1/10W
R202	1-216-150-00	RES, CHIP	10	5%	1/8W
R203	1-216-150-00	RES, CHIP	10	5%	1/8W
R204	1-216-150-00	RES, CHIP	10	5%	1/8W
R205	1-216-150-00	RES, CHIP	10	5%	1/8W
R206	1-208-453-61	RES, CHIP	4.7K	2%	1/10W
R207	1-216-073-00	METAL CHIP	10K	5%	1/10W
R232	1-208-550-61	RES, CHIP	470K	2%	1/10W
R251	1-208-534-61	RES, CHIP	100K	2%	1/10W
R252	1-208-534-61	RES, CHIP	100K	2%	1/10W
R253	1-208-760-11	RES, CHIP	120	2%	1/10W
R254	1-218-764-11	RES, CHIP	330K	2%	1/10W
R255	1-208-810-11	RES, CHIP	15K	2%	1/10W
R256	1-216-677-11	METAL CHIP	12K	0.5%	1/10W
R257	1-216-682-11	METAL CHIP	20K	0.5%	1/10W
R261	1-208-534-61	RES, CHIP	100K	2%	1/10W
R262	1-208-534-61	RES, CHIP	100K	2%	1/10W
R263	1-208-760-11	RES, CHIP	120	2%	1/10W
R264	1-218-764-11	RES, CHIP	330K	2%	1/10W
R265	1-208-810-11	RES, CHIP	15K	2%	1/10W
R266	1-216-677-11	METAL CHIP	12K	0.5%	1/10W
R267	1-216-659-11	METAL CHIP	2.2K	0.5%	1/10W
R268	1-208-453-61	RES, CHIP	4.7K	2%	1/10W
R271	1-208-453-61	RES, CHIP	4.7K	2%	1/10W

Ref. No.	Part No.	Description			Remark
R281	1-208-453-61	RES, CHIP	4.7K	2%	1/10W
R301	1-208-462-61	RES, CHIP	10K	2%	1/10W
R304	1-208-457-11	RES, CHIP	6.2K	2%	1/10W
R330	1-208-437-61	RES, CHIP	1K	2%	1/10W
R331	1-208-518-61	RES, CHIP	22K	2%	1/10W
R332	1-208-522-61	RES, CHIP	33K	2%	1/10W
R333	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R334	1-208-518-61	RES, CHIP	22K	2%	1/10W
R337	1-208-522-61	RES, CHIP	33K	2%	1/10W
R340	1-208-437-61	RES, CHIP	1K	2%	1/10W
R341	1-208-518-61	RES, CHIP	22K	2%	1/10W
R342	1-208-522-61	RES, CHIP	33K	2%	1/10W
R343	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R344	1-208-518-61	RES, CHIP	22K	2%	1/10W
R347	1-208-522-61	RES, CHIP	33K	2%	1/10W
R351	1-208-453-61	RES, CHIP	4.7K	2%	1/10W
R352	1-208-453-61	RES, CHIP	4.7K	2%	1/10W
R361	1-208-534-61	RES, CHIP	100K	2%	1/10W
R364	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R366	1-216-063-00	RES, CHIP	3.9K	5%	1/10W
R367	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R368	1-208-522-61	RES, CHIP	33K	2%	1/10W
R369	1-216-097-00	RES, CHIP	100K	5%	1/10W
R371	1-208-449-61	RES, CHIP	3.3K	2%	1/10W
R372	1-208-453-61	RES, CHIP	4.7K	2%	1/10W
R373	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R374	1-208-518-61	RES, CHIP	22K	2%	1/10W
R401	1-208-462-61	RES, CHIP	10K	2%	1/10W
R404	1-208-457-11	RES, CHIP	6.2K	2%	1/10W
R430	1-208-437-61	RES, CHIP	1K	2%	1/10W
R431	1-208-518-61	RES, CHIP	22K	2%	1/10W
R432	1-208-522-61	RES, CHIP	33K	2%	1/10W
R433	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R434	1-208-518-61	RES, CHIP	22K	2%	1/10W
R437	1-208-522-61	RES, CHIP	33K	2%	1/10W
R440	1-208-437-61	RES, CHIP	1K	2%	1/10W
R441	1-208-518-61	RES, CHIP	22K	2%	1/10W
R442	1-208-522-61	RES, CHIP	33K	2%	1/10W
R443	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R444	1-208-518-61	RES, CHIP	22K	2%	1/10W
R447	1-208-522-61	RES, CHIP	33K	2%	1/10W
R461	1-208-534-61	RES, CHIP	100K	2%	1/10W
R464	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R466	1-216-063-00	RES, CHIP	3.9K	5%	1/10W
R467	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R468	1-208-522-61	RES, CHIP	33K	2%	1/10W
R469	1-216-097-00	RES, CHIP	100K	5%	1/10W
R471	1-208-449-61	RES, CHIP	3.3K	2%	1/10W
R472	1-208-453-61	RES, CHIP	4.7K	2%	1/10W
R473	1-216-635-11	METAL CHIP	220	0.5%	1/10W
R474	1-208-518-61	RES, CHIP	22K	2%	1/10W
R501	1-216-097-00	RES, CHIP	100K	5%	1/10W
R503	1-216-097-00	RES, CHIP	100K	5%	1/10W
R504	1-216-081-00	METAL CHIP	22K	5%	1/10W
R505	1-216-081-00	METAL CHIP	22K	5%	1/10W
R506	1-216-097-00	RES, CHIP	100K	5%	1/10W
R507	1-216-097-00	RES, CHIP	100K	5%	1/10W
R508	1-216-097-00	RES, CHIP	100K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R510	1-216-097-00	RES, CHIP	100K	5%	1/10W
R511	1-216-097-00	RES, CHIP	100K	5%	1/10W
R512	1-216-049-11	RES, CHIP	1K	5%	1/10W
R513	1-216-081-00	METAL CHIP	22K	5%	1/10W
R514	1-216-295-00	SHORT	0		
R515	1-216-081-00	METAL CHIP	22K	5%	1/10W
R516	1-216-097-00	RES, CHIP	100K	5%	1/10W
R520	1-216-097-00	RES, CHIP	100K	5%	1/10W
R521	1-216-097-00	RES, CHIP	100K	5%	1/10W
R522	1-216-097-00	RES, CHIP	100K	5%	1/10W
R523	1-216-097-00	RES, CHIP	100K	5%	1/10W
R524	1-216-097-00	RES, CHIP	100K	5%	1/10W
R526	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R528	1-216-295-00	SHORT	0		
R531	1-216-049-11	RES, CHIP	1K	5%	1/10W
R532	1-216-049-11	RES, CHIP	1K	5%	1/10W
R533	1-216-049-11	RES, CHIP	1K	5%	1/10W
R534	1-216-049-11	RES, CHIP	1K	5%	1/10W
R535	1-216-097-00	RES, CHIP	100K	5%	1/10W
R536	1-216-097-00	RES, CHIP	100K	5%	1/10W
R537	1-216-097-00	RES, CHIP	100K	5%	1/10W
R538	1-216-097-00	RES, CHIP	100K	5%	1/10W
R539	1-216-097-00	RES, CHIP	100K	5%	1/10W
R540	1-216-097-00	RES, CHIP	100K	5%	1/10W
R541	1-216-081-00	METAL CHIP	22K	5%	1/10W
R542	1-216-081-00	METAL CHIP	22K	5%	1/10W
R546	1-216-041-00	METAL CHIP	470	5%	1/10W
R551	1-216-073-00	METAL CHIP	10K	5%	1/10W
R552	1-216-097-00	RES, CHIP	100K	5%	1/10W
R553	1-216-049-11	RES, CHIP	1K	5%	1/10W
R556	1-216-049-11	RES, CHIP	1K	5%	1/10W
R561	1-216-025-00	RES, CHIP	100	5%	1/10W
R562	1-216-025-00	RES, CHIP	100	5%	1/10W
R563	1-216-675-11	METAL CHIP	10K	0.5%	1/10W
R564	1-216-675-11	METAL CHIP	10K	0.5%	1/10W
R566	1-216-675-11	METAL CHIP	10K	0.5%	1/10W
R567	1-216-675-11	METAL CHIP	10K	0.5%	1/10W
R571	1-216-025-00	RES, CHIP	100	5%	1/10W
R572	1-216-025-00	RES, CHIP	100	5%	1/10W
R573	1-216-073-00	METAL CHIP	10K	5%	1/10W
R574	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R576	1-216-097-00	RES, CHIP	100K	5%	1/10W
R577	1-216-089-00	RES, CHIP	47K	5%	1/10W
R578	1-216-009-00	METAL CHIP	22	5%	1/10W
R581	1-208-494-61	RES, CHIP	2.2K	2%	1/8W
R582	1-216-073-00	METAL CHIP	10K	5%	1/10W
R584	1-208-518-61	RES, CHIP	22K	2%	1/10W
R585	1-208-518-61	RES, CHIP	22K	2%	1/10W
R591	1-208-494-61	RES, CHIP	2.2K	2%	1/8W
R592	1-216-073-00	METAL CHIP	10K	5%	1/10W
R594	1-208-518-61	RES, CHIP	22K	2%	1/10W
R595	1-208-518-61	RES, CHIP	22K	2%	1/10W
R611	1-208-437-61	RES, CHIP	1K	2%	1/10W
R651	1-216-049-11	RES, CHIP	1K	5%	1/10W
R652	1-216-049-11	RES, CHIP	1K	5%	1/10W
R657	1-216-097-00	RES, CHIP	100K	5%	1/10W
R658	1-216-066-00	METAL CHIP	5.1K	5%	1/10W

MAIN **SUB**

Ref. No.	Part No.	Description			Remark
R659	1-216-073-00	METAL CHIP	10K	5%	1/10W
R661	1-216-025-00	RES, CHIP	100	5%	1/10W
R662	1-216-025-00	RES, CHIP	100	5%	1/10W
R664	1-216-049-11	RES, CHIP	1K	5%	1/10W
R667	1-216-025-00	RES, CHIP	100	5%	1/10W
R669	1-216-025-00	RES, CHIP	100	5%	1/10W
R670	1-216-025-00	RES, CHIP	100	5%	1/10W
R671	1-216-025-00	RES, CHIP	100	5%	1/10W
R672	1-216-025-00	RES, CHIP	100	5%	1/10W
R673	1-216-025-00	RES, CHIP	100	5%	1/10W
R675	1-216-699-11	METAL CHIP	100K	0.5%	1/10W
R676	1-216-699-11	METAL CHIP	100K	0.5%	1/10W
R701	1-208-373-11	RES, CHIP	2.2	2%	1/8W
R702	1-208-373-11	RES, CHIP	2.2	2%	1/8W
R703	1-208-373-11	RES, CHIP	2.2	2%	1/8W
R704	1-208-373-11	RES, CHIP	2.2	2%	1/8W
R705	1-208-373-11	RES, CHIP	2.2	2%	1/8W
R706	1-208-373-11	RES, CHIP	2.2	2%	1/8W
R707	1-208-373-11	RES, CHIP	2.2	2%	1/8W
R708	1-208-373-11	RES, CHIP	2.2	2%	1/8W
R714	1-216-049-11	RES, CHIP	1K	5%	1/10W
R715	1-216-073-00	METAL CHIP	10K	5%	1/10W
R904	1-216-295-00	SHORT	0		
R923	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R924	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R932	1-208-453-61	RES, CHIP	4.7K	2%	1/10W
R942	1-208-453-61	RES, CHIP	4.7K	2%	1/10W
R951	1-216-017-00	RES, CHIP	47	5%	1/10W
R952	1-216-081-00	METAL CHIP	22K	5%	1/10W
R953	1-216-089-00	RES, CHIP	47K	5%	1/10W
R954	1-216-081-00	METAL CHIP	22K	5%	1/10W
R955	1-216-295-00	SHORT	0		
		< CONPOSITION CIRCUIT BLOCK >			
RB504	1-236-904-11	NETWORK RESISTOR (CHIP) 1.0K			
		< VARIABLE RESISTOR >			
RV251	1-238-600-11	RES, ADJ, CARBON 10K			
RV261	1-238-600-11	RES, ADJ, CARBON 10K			
		< SWITCH >			
S501	1-571-478-11	SWITCH, SLIDE (POWER SELECT)			
S541	1-762-108-11	SWITCH, PUSH (1 KEY) (NOSE DET)			
S551	1-692-431-21	SWITCH, TACTILE (RESET)			
		< TUNER >			
TU11	A-3282-029-A	TUNER UNIT TUX-006/2 (E)			
		< VIBRATOR >			
X91	1-579-373-11	VIBRATOR, CRYSTAL (7.2MHz)			
X101	1-767-459-21	VIBRATOR, CERAMIC (8MHz)			
X501	1-767-460-21	VIBRATOR, CERAMIC (5MHz)			
X502	1-579-886-21	VIBRATOR, CRYSTAL (32.768kHz)			

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Ref. No.	Part No.	Description			Remark
*	1-665-379-11	SUB BOARD			
		**********			
		< CONNECTOR >			
CN800	1-779-170-11	SOCKET, CONNECTOR 20P			
CN801	1-779-169-11	SOCKET, CONNECTOR 18P			
		< DIODE (LED) >			
D800	8-719-422-64	DIODE MA8062-M			
D801	8-719-422-64	DIODE MA8062-M			
D802	8-719-422-64	DIODE MA8062-M			
D803	8-719-422-64	DIODE MA8062-M			
LED800	8-719-058-14	DIODE CL-220PG-C-TS (TAPE WINDOW)			
		< SWITCH >			
LSW800	1-762-619-11	SWITCH, KEY BOARD (WITH LED)(⏏)			
		< TRANSISTOR >			
Q800	8-729-424-08	TRANSISTOR UN2111			
Q801	8-729-421-22	TRANSISTOR UN2211			
		< RESISTOR >			
R800	1-216-073-00	METAL CHIP	10K	5%	1/10W
R801	1-216-073-00	METAL CHIP	10K	5%	1/10W
R803	1-216-037-00	METAL CHIP	330	5%	1/10W
R804	1-216-049-11	RES, CHIP	1K	5%	1/10W
R805	1-216-049-11	RES,CHIP	1K	5%	1/10W
R806	1-216-049-11	RES,CHIP	1K	5%	1/10W
R807	1-216-049-11	RES,CHIP	1K	5%	1/10W
R808	1-216-089-00	RES,CHIP	47K	5%	1/10W
R809	1-216-089-00	RES,CHIP	47K	5%	1/10W

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MISCELLANEOUS
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2	1-776-207-11	CORD (WITH CONNECTOR) (POWER)			
25	1-782-246-21	CORD (WITH CONNECTOR) (SUB W. OUT)			
F901	1-532-877-11	FUSE (BLADE TYPE) (AUTO FUSE) (10A)			
HP901	1-500-157-21	HEAD, MAGNETIC (PLAYBACK)			
M901	A-3291-665-A	MOTOR ASSY, MAIN (CAPSTAN/REEL)			

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****
HARDWARE LIST
****

#1	7-621-772-30	SCREW +B 2X6			
#2	7-621-255-15	SCREW +P 2X3			
#3	7-685-793-09	SCREW +PTT 2.6X8 (S)			
#5	7-685-105-19	SCREW +P 2X8 TYPE2 NON-SLIT			
#6	7-624-104-04	STOP RING 2.0, TYPE-E			
#7	7-627-553-17	PRECISION SCREW +P 2X2 TYPE 3			

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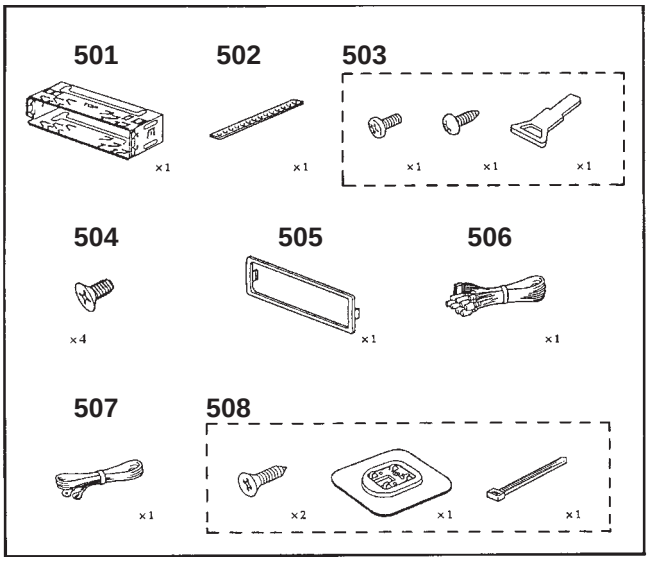
Ref. No.	Part No.	Description	Remark
		ACCESSORIES & PACKING MATERIALS	
		**********	
	1-473-067-31	REMOTE COMMANDER (RM-X2S)	
*	3-012-070-01	LABEL (SOUND) (2) (for RM-X2S)	
	3-862-510-11	MANUAL, INSTRUCTION (ENGLISH)	
	3-862-511-11	MANUAL, INSTRUCTION, INSTALL (ENGLISH)	
	X-3373-926-1	CASE ASSY (XR) (for FRONT PANEL)	
**********			
		PARTS FOR INSTALLATION AND CONNECTIONS	
		**********	
501	3-009-613-21	FRAME	
502	3-914-406-01	SUPPORT (ND), FITTING	
503	X-3370-076-1	SCREW ASSY (U. KEY), FITTING	
504	3-934-325-01	SCREW, +K (5X8) TAPPING	
505	3-012-213-41	COLLAR	
506	1-776-207-11	CORD (WITH CONNECTOR) (POWER)	
507	1-775-543-11	CORD, GROUND	
508	X-3373-432-1	BRACKET ASSY (for RM-X2S)	



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